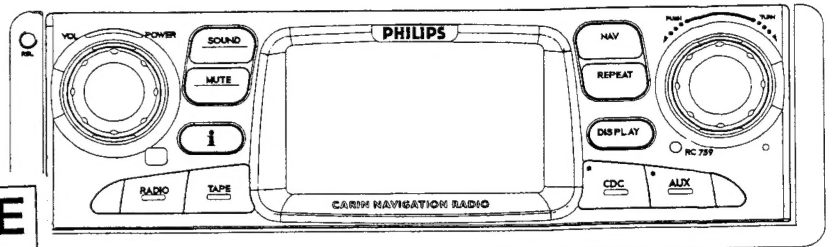# Service
Service
Service

ERSATZTEILE
für Philips Car Systems
erhalten Sie bei:
KiVi Service GmbH
Windmühlenstr. 41 · 31178 Giesen/Emmerke
Tel.: 0 51 21 / 6 00 20 · Fax 0 51 21 / 60 02 54

For repair information of the tape deck, see service manual
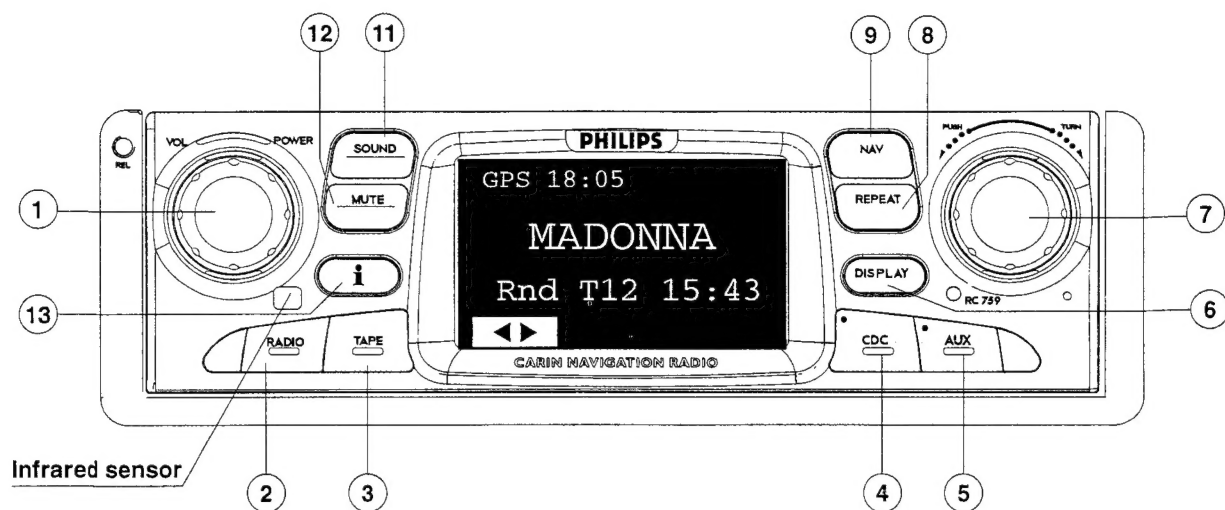4822 725 25481 of auto cassette deck SCAR 3.1.

Service Manual

12 V ⊖

Contents   page

PHILIPS

Infrared sensor

	Keys	Application	Action
1	Audio Rotary button	Audio	Adjust selected audio settings
		Power control	Power switch On/Off
11	Sound key	Audio	Select audio settings
12	Mute key	Audio	Volume mute selection
8	Repeat key	Navigation	Repeat last Navigation message
7	Menu rotary button	User Interface	Menu items selection or DFA activation
			Menu item activation or DFA selection
6	Display key	User Interface	Audio / Navigation display selection
13	Information key	Announce	Announcement modes selection
2	Radio key	State control	Radio source selection
3	CD key or Tape key	State control	Player source selection
9	Navigation key	User interface	Navigation menu enter
4	CDC key	State control	CDC source selection
5	Tel./Aux key	State control	Telephone or Auxiliary source selection
REL	Front flap down button	Power control	Remove front

22RC759/00

Zoom on C chamber
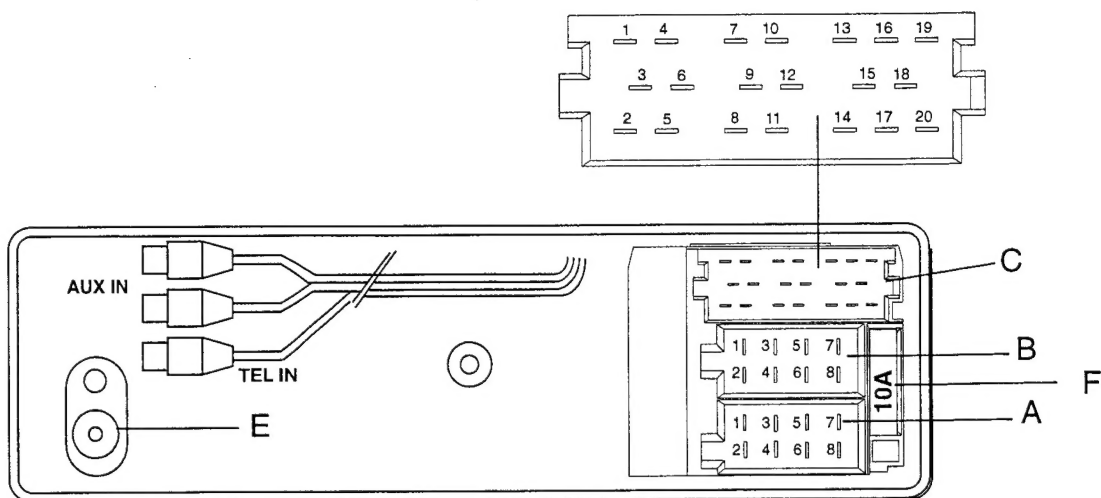
	Name of signal on schematic PS01			Name of signal on schematic UP02
A : POWER SUPPLY		**C:**		
A1 Telephone mute	A1	C1 Rear left		LO_RL
A2 Mouse GND		C2 Rear right		LO_RR
A3 Mouse		C3 Gnd	C1	
A4 Plus permanent +	POWER	C4 Front left		LO_FL
A5 Electrical antenna	A5	C5 Front right		LO_FR
A6 External illumination plus	A6	C6 = A5		
A7 Ignition On / Off	NO_POWER			
A8 Power ground		C7 = A7		NO_POWER
		C8 Carin in		CARIN_AUD
B : LOUDSPEAKER SUPPLY		C9 Carin ref	C2	CARIN_REF
B1 Rear right +	B1	C10 D2B+		DB+
B2 Rear right -	B2	C11 D2B GND		
B3 Front right +	B3	C12 D2B-		DB-
B4 Front right -	B4			
B5 Front left +	B5	C13 D2B+		DB+
B6 Front left -	B6	C14 D2B-		DB-
B7 Rear left +	B7	C15 D2B GND		
B8 Rear left -	B8	C16 + Permanent	C3	+14V4 CDC
		C17 = A5		
		C18 In ref		CDC_REF
		C19 In left		CDC_LEFT
		C20 In right		CDC_RIGHT

C1 Line out
for YELLOW connector

C2 Nav computer
For GREEN connector

C3 CD changer
for BLUE connector

E : Aerial plug slide in

F : Fuse 10A

22RC759/00

3

REMOVING THE PWB

Top view
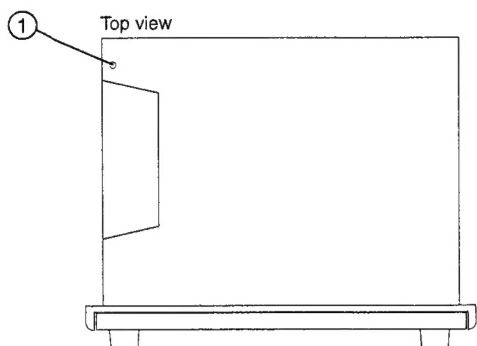
Remove the cover top (screw **1**) and the cover bottom
Remove the detachable front

Front view
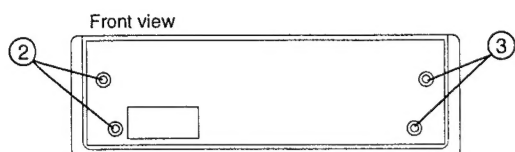
Remove the fixed front (screws **2** and **3**)

Top view
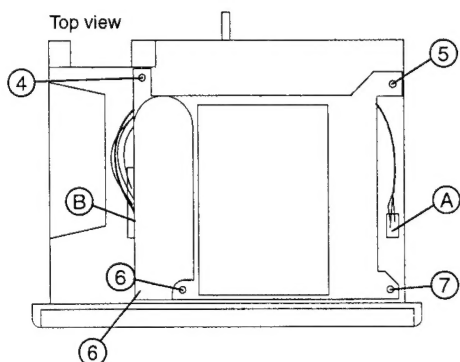
Disconnect the **A** connector
Remove the deck (screws **4,5,6** and **7**)
Disconnect the **B** connector

Rear view
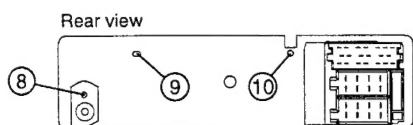
Remove the antenna plug bracket (screws **8**)
Remove the main PWB (screws **9** to **17**)

Bottom view

Left view
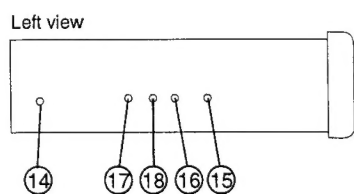
This sets can be used either as a single radio part, or can be included in a system.
The system is composed of:
The head unit 22RC759/00
A Carin MK2i navigation 22SY059
An optional CD Changer
An optional infrared remote control

head unit

Radio CD player
System MMI
Detachable front

CD Changer
(option)

D2B

22SY059

IR remote control (option)

This Service Manual concerns only the set 22RC759/00.

ESD

WARNING
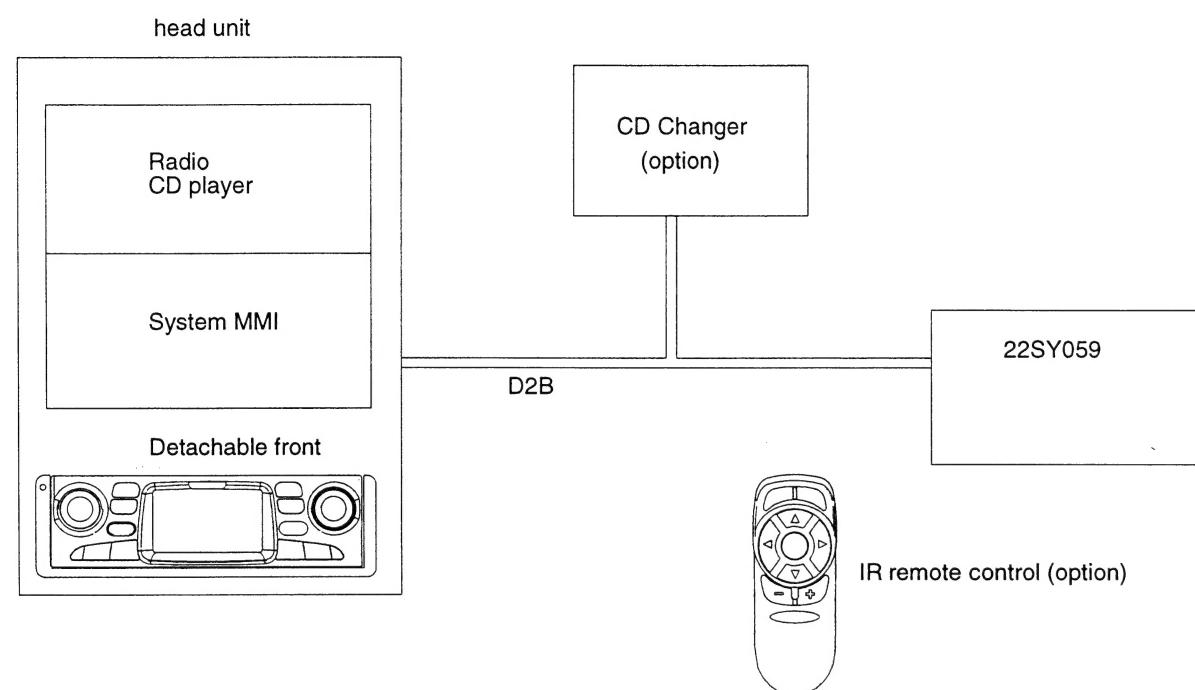
All ICs and many other semi-conductors are
susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life
drastically.
When repairing, make sure that you are
connected with the same potential as the mass
of the set via a wrist wrap with resistance.
Keep components and tools also at this
potential.

ESD equipment available:

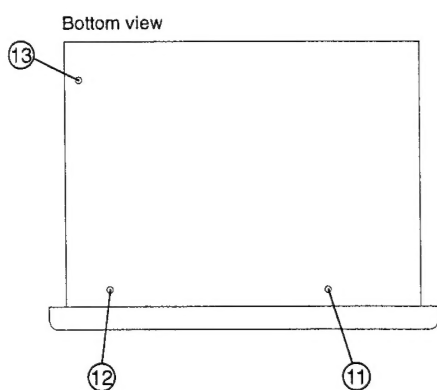|	
Anti-static table mat large 100X650X1.25mm	4822 466 10953
small 600X650X1.25mm	4822 466 10958
Connection box (1Mohm)	4822 395 10223
Extendible cable (to connect wrist band to connection box)	4822 320 11307
Connecting cable (to connect table mat to connection box)	4822 320 11305
Earth cable (to connect any product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 310 10671
wristband tester	4822 344 13999

TECHNICAL DATA

GENERAL
Power supply	:10.8 to 15.6V DC
Dimensions	:180x150x51 mm
Front	: Full detachable
Security code	: No
Blinking LED	: Yes
Quiescent current (at 12.6V)	: <3mA (with clock and blinking LED)

RADIO
LW	: 144-288 KHz -　steps Manual / Search : 1 KHz
MW (Europe)	: 531-1629 KHz -　steps Manual / Search : 1 / 9 KHz
MW (USA)	: 530-1710 KHz -　steps Manual / Search : 1 / 10 KHz
SW	: 5.95-6.25 MHz -　steps Manual / Search : 1 KHz
FM (Europe) X2	: 87.5-108 MHz -　steps Manual / Search : 50 / 50KHz
FM (USA) X2	: 87.9-107.9 MHz - steps Manual / Search : 50 / 50KHz
IF-AM (1/2)	: 10.7 MHz / 450 KHz
IF-FM (1/2)	: 72.2 MHz / 10.7 MHz
Sensivity 26dB S/N	: 20μV (LW)
	: 14μV (MW)
	: 14μV (SW)
	: 3μV (FM)
Limitation α-3dB	: 6to 10μV

CASSETTE
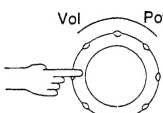|	
Cassette mechanism	:SCA-R 3.1
Number of tracks	:2x2
Tape speed	:4.76 cm/sec
Wow and flutter	:$\leq$ 0.25% (+10° to +45°)
Crosstalk	:> 35dB

22RC759/00

Short extract of the Directions For Use.
This will lead you in the use of this set, which is menu driven.
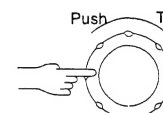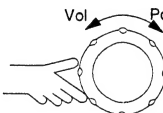
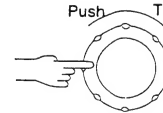| LEGEND | ☞ Press the button | ⇖ Turn the button |

BASIC FUNCTIONS

SOUND

- On/Off: Switch the set On or Off

- Confirm the warning 'Always observe roadway signs and signals' (if a nav is connected)

- Volume: Adjust the volume.

- Mute (silence): Mute the set or cancel the mute

```
VOLUME:

        21
Min              Max
▮▮▮
```

RADIO

- Radio mode: Listen to the radio

- Tuning method: Select one of the following tuning methods.

```
RDS 18:05        ♫

EUROPE 1

FM               5
A-Z  ◄◄ ►►  ◄P►
```

A-Z **To tune to a station name** (if an RDS station on FM). Stations are stored in alphabetical order. *If you hear an error bleep: update the list of station names by activating 'RDS memo'.*

◄◄ ►► **- To tune to a frequency automatically.**
If 'Traffic' is activated the radio will only search for stations allowing the reception of traffic annoucements.

- To tune to a frequency manually (if 'Manual tuning is activated). Also press the ◎ button to stop the fast tuning. *After 50 seconds or after selecting a different tuning method the radio switches back to automatic frequency tuning.*

- To tune to a programme type (if 'PTY' search is activated). When no station is found or after selecting a different tuning method, the radio switches back to automatic frequency tuning.

◄P► **To tune to a preset.**

- Tuning: Tune in the desired station
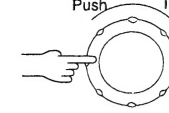
CASSETTE PLAYER

- Cassette player mode: Listen to the inserted cassette.
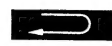
- Select function: Select one of the following cassette functions:

```
RDS 18:05        ▭

< PLAY

◄▶  ◄◄▶►  ⟵
```
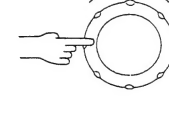
◄▶ **To select a specific track** (previous/next)

◄◄ ►► **To wind the cassette backwards/forwards.** Also press the same button to stop the rewind/fast forward.

⟵ **To reverse the direction of play.**
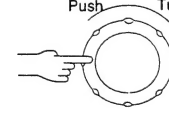
- Activate selected function: Move to another part of the cassette.

CD CHANGER (if connected)

- CD changer mode: Listen to a CD loaded in the magazine and inserted in the CD changer.

- Select function: Select one of the following CD changer functions:

```
INT 18:05

P07 00:14

Rnd T12 15:43
◄▶  ◄◄▶►  ⊚⟫⟫
```
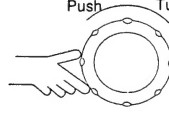
◄▶ **To select a specific track** (previous/next)

◄◄ ►► **To move backwards/forwards.** Also press the ◎ button to stop the fast backward/forward.

⊚⟫⟫ **To select a specific CD.**

- Activate selected function: Move to another part of the CD or to another CD.

AUXILIARY (if portable player is connected)

- Auxiliary mode: listen to the portable sound player.

```
INT 18:05

AUXILIARY
```

DISPLAY

- Display: Show information on the sound output.

```
Preset nb : 5
Name : EUROPE1
Freq : 104.7MHz
PTY : None
Style : User
```

NAVIGATION (if connected)

- Repeat: Repeat the last spoken guidance message. During a phone call (if phone is linked to the set) these messages are replaced by beeps. You can then press this key to hear the spoken guidance message.

EXPLANATION DISPLAYS

GPS/RDS/INT:
The selected 'Clock type'
(GPS: available only when a
nav is connected)

18:05: The time

: You have selected a 'Sound style' other than 'User'

: A cassette is inserted

```
GPS 18:05

MADONNA

Scan T12 15:43  5

◄►   ◄◄►►   Rnd
```

MADONNA
- *Radio:* Station name / Frequency
- *CD:* CD title / current track number and elapsed time

5: The preset number (radio)
CD number *(CD)*
MAN: Manually tuning to a station
Sport: Tuning to a program type
LO: Only tuning to a local station
DX: Tuning to a distant or local station
TA: tuning to a station that can receive traffic announcements

15:43: Elapsed time *(CD)*

T12: Current track number *(CD)*

Radio:
FM / FM AST / MW / MW AST / SW / LW:
The current waveband
- **Scan Frq:** Scanning frequencies on the current waveband
- **Scan Pm:** Scanning presets on the current waveband
Cassette:
- **Scan cassette :** Scanning of the tracks

MENU OPERATION

- **Menu on/off:** Enter/leave one of the following menus.

- **Information menu**

- **Sound menu**
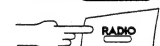
- **Radio menu** (when already in radio mode)
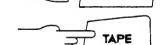
- **Cassette menu** (when already in cassette mode)

- **CD changer menu** (when already in CD changer mode)
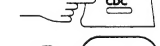
- **Navigation menu** (when a Nav is connected)

Turn
Push
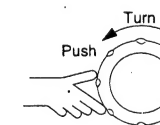
- **Selection:** Place the cursor on the desired option/character.
    The following indications are given on screen:
- OPTION   : Option in dotted characters cannot be selected.
-         ▲   : Arrows in front of options indicate that more options
          ▼   are available than displayed.
- ✓   : A tick shows that the function is activated.
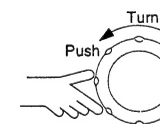
Turn
Push

- **Confirmation:** Confirm the selected option/character.
    The following menu functions can also be available:
- **'QUIT'** and **'RETURN':** return to the previous display. 'QUIT' is
  often available when placing the cursor on the menu title.

INFORMATION MENU

Traffic: Activate to listen to Traffic Announcement (TA) when broadcast (even if you play a cassette or mute the set). The set may also receive traffic announcements from other stations.

- *If you hear an error beep:* The radio is not already tuned to a station enabling the reception of traffic announcements. The radio automatically searches until it finds another station.

- *If you hear error beeps at repeated intervals:* You are i an area where no traffic information is broadcast. Deactivate the 'Traffic' function or tune to a different station.

Also press the ◎ button to stop listening to a particular traffic announcement (the 'Traffic' function remains active).

News: Activate to listen to news bulletins when broadcast (even if you play a cassette or mute the set). The set may also receive news bulletins from other stations. Traffic announcements may interrupt news bulletins. *'News' is not yet implemented in all countries.*

Also press the ◎ button to stop listening to a particular news bulletin (the 'News' function remains active).

Announcement level: Adjust the volume difference of traffic announcements, news bulletins and alarm messages.

SOUND MENU

Loudness: Activate to amplify the low and high notes at low volume settings.

Sound settings: Adjust the bass (low notes), treble (high notes), balance (left-right) and fader (rear-front). The bass and treble settings are stored independently for each sound source.

Sound style: Choose one of the predefined sound styles. Select 'User' to maintain your own bass and treble settings. The sound style is stored independently for each sound source.

**Sound reset:** Switch the loudness off, reset the sound settings to their mid-positions and adjust the 'Sound style' to 'User'.

▶ **Sound setup:** To adjust one of the following functions.

   SDVC (Speed-dependent volume control, if a navigation system is connected): Adjust the volume compensation linked to your driving speed.

   Leveller: Activate to adjust the volume of each sound source to the same level.

   Loudness low: Adjust the amplification of the low notes in loudness.

   Loudness high: Adjust the amplification of the high notes in loudness.

   Bass frequency: Select the average frequency of low notes.

   Treble frequency: Select the average frequency of high notes.

▶ **Initialization:** See 'INITIALIZATION SUBMENU'.

RADIO MENU

RDS Memo (only on FM): Activate update the list of station names you can tune to alphabetically. You hear a beep. Wait until the set has finished storing the RDS stations.

Autostore (only on FM and MW): Activate to automatically store 10 FM stations on the FM AST band or 10 MW stations on the MW AST band. You hear a beep. Wait until the set has finished storing the strongest stations.

Scan: Activate to briefly listen to each station or preset on the current waveband. Also press the ◎ button to deactivate this function when you hear a station you like.
Band: Select the desired waveband.

AF retuning (only on FM): Activate to maintain the best possible reception. The set continuously checks a list of Alternative Frequencies (AF) for the tuned radio station and automatically select the best frequency for you. Only deactivate this function when you hear short sound interruptions or when the set automatically tunes to an unwanted station.

Manual tuning: Activate to manually tune to a frequency when you can not find the desired station using automatic tuning.

Store preset: Store the station you are listening to as a preset. Then select its position in the preset list. When storing an FM station, the 'AF retuning' (on/off) is stored on the preset.

Recall program (only on FM): Select the name of the station you want to listen to from the list.

Recall preset: Choose the preset you want to listen to from the list.

PTY search (only on FM): Tune to a station according to the type of programme (PTY) being broadcast. Select the programme type from the list. *PTY is not yet implemented in all countries.*

▶ **Radio setup:** Adjust one of the following functions.

> **Search level:** Select 'LO' if you *only* wish to search local stations (strong stations) when tuning to a frequency automatically. Select 'DX' to search for distant stations too.

> **Tuner grid:** Select the tuner according to European or American standards.

> **Scan type:** Choose between a frenquency or a preset scan.

▶ **Initialization:** See 'INITIALIZATION SUBMENU'

———— CASSETTE PLAYER MENU ————

Scan: Activate to listen to the beginning of each track. Also press the same button to deactivate this function when you hear a track you like.

Dolby B: Activate when the cassette has been recorded using the Dolby B Noise Reduction System.

▶ **Initialization:** See 'INITIALIZATION SUBMENU'

———— CD CHANGER MENU ————

Scan: Activate to listen to the beginning of each track. Also press the ◎ button to deactivate this function when you hear a track you like.

Random: Activate to play the tracks on the CD in random order.

Repeat track: Activate to replay your favourite track.

Select CD: Select the desired CD from the list.

CD title: Assign a name to the CD you are listening to, with a maximum of 13 characters. If the memory containig 50 titles is full, select a title you want to delete before entering the new title.
CD changer setup: Adjust one of the following functions.

> **Compression:** Activate to reduce the volume of loud sections and increase the volume at quiet sections.

> **Compression rate:** Adjust the level of volume reduction/increase when the compression is activated.

> **CD access:** Choose whether you wish to select the CD number or the CD title from the 'Select CD' menu.

▶ **Initialization:** See 'INITIALIZATION SUBMENU'

———— INITIALIZATION SUBMENU ————

Language (if no navigation system is connected): Choose the language of the display readings.

Telephone: Select 'MUTE' to automatically interrupt the set's sound output when using your car phone. Select 'IN' when you also wish to amplify the received voice through the car speakers. Select 'NONE' if no car phone is connected to the set.

Telephone signal: Adjust according to your telephone mute signal ('LOW' in most cases).

Beep type: Select the type of confirmation beeps.

Guidance level (if navigation system is connected): Adjust the volume difference of the spoken guidance messages.

▶ **Clock settings:** To adjust the time.

> **Clock type:** Select an iinternal clock (INT) or a clock which is automaticslly updated via RDS or via GPS (only if a navigation system is connected).

> **Clock format:** Select the desired clock format.

> **Hour (if an internal clock type):** Adjust the hours.

> **Minute (if an internal clock type):** Adjust the minutes.

> **Summer time (if a GPS clock type):** Add/substract an hour.

> **Timezone (if a GPS clock type):** Determine the time difference with London Greenwich Mean Time.

Scan time: Select how many minutes the set scans one station or track.

On-off logic: Activate to limit the use of the set to one hour after you have removed the car ignition key.

Warning light: Activate to switch on the flashing red light when the detachable front is removed.

Contrast: Adjust the contrast of the display.

Loudspeaker test: Test the loudspeakers connections and their positioning. Switch the set off to end the test session.

Check and Alignment

For all measurements, please refer to the manual "General Check & Alignment procedures for Car Systems" 4822 725 25456, unless otherwise stated.

Current and voltage

1) SET OFF (A6 not connected)

SET OFF	Voltage	Current +Acc ON	Current +Acc OFF	Supply µP 560 pin 14	supply µP XA pin 17	V_LOW pin 4- 74HC251
Acc Supply	+12.6V	< 2mA		4. 7V	5V	5V
Perm Supply	+12.6V	< 2mA	<3 mA Led is ON - Front is out			

2) SET ON (A6 not connected)

Reset µP 560 pin 30	Reset µP XA pin 4	5V supply µP XA pin 17	5V supply µP 560 pin 14	V_LOW 74HC251 pin 4	5V Switch mode pin 2	8.5V LF85CDT pin 3	EEprom supply pin 8
0V	5V	5V	5V	5V	5.3V	8.5V	5V

Reference oscillator frequencies (to be measured via a X10 probe)

device	MSM 6307	83CE560	P51XAG3	SAA7701	SAA7366T	SAA1305T
pin	24 & 25	51 & 52	14 & 15	63 & 64	4	16 & 17
frequency	6 MHz 0.5%	16 MHz 0.5%	24MHz 0.5%	36.860 MHz 60 ppm	11.2896 MHz 60 ppm	32.768KHz 60 ppm

Checks:
1) FM

FM mute	98 MHz 1mV	output at load resistor R & L = 775 mV = REF
	no signal	output should be < -24 dB (REF - 24 dB)

Demodulated FM level	98 MHz	215 mV 2dB
	Input	MPX Output of IC96 (pin 10)

Limiting point α-3dB	FM 98MHz	1mV 400Hz	6µV	4µV	9µV
	RANGE	INPUT	NOMINAL	MIN	MAX

Search levels	Input	Dx: 10µV < X < 20µV Local : 190µV < X < 290µV
	98 MHz	

2) AM

Demodulated AM level	1053KHz - m=30% - 1KHz	230 mV 2dB
	Input	Audio output of IC96 (pin 19)

Sensivity at 26dB S/N	162KHz	m = 30%	400Hz	< 38µV
	1053KHz			< 30µV
	6100KHz			<25µV

Search levels	Input	Dx: 10µV < X < 20µV Local : 35µV < X < 100µV
	1053KHz	

No alignment is needed for radio part. The tuner module IC96 is pre-aligned in the factory.
Dolby alignment, crosstalk alignment and FM DC level curve learning procedure are performed via a special equipment and software, not yet available in service.
Some values are stored in the EEprom.
The EEprom available in service will contain mean values, that could affect slightly the performance of the set. It is the only solution until further notice.
Consequence: If you change the tuner module, change also the EEprom.

Tape part

Use test cassette SBC420 4822 397 30071 unless otherwise stated.

Tape speed and flutter: Use 3.15KHz test tone	Supply voltage	Tape speed	Flutter (wtd)
	10.8 - 15.6 V	4.76cm/s +3% -1%	< 0.35%

Crosstalk : use 1KHz 0dB crosstalk signal	< -30dB at speakers output R & L

In order to prevent a bus noise in CD changer mode, a capacitor is added manually on the bottom side.

See the drawing below.

added capacitor item 2272, see electrical partslist

Green wire

MAIN PWB. BOTTOM SIDE VIEW

22RC759/00
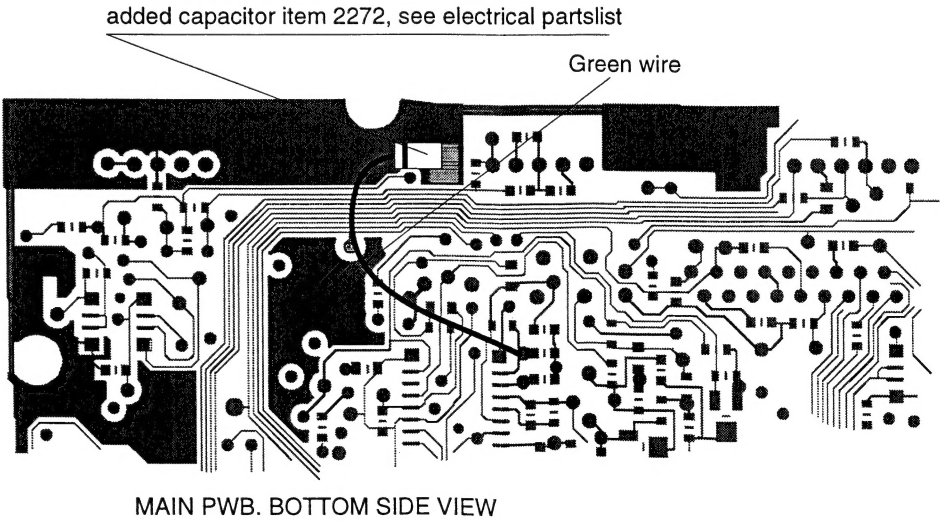
Test modes

-Functional test - This test checks the functionality of the user inputs (switches, rotary switches, infra red remote control).

Entering the test:
Press Nav + Sound + Power keys
The buttons illumination led's are switched on sequentially every 250 ms. The day/night output is switched on and off every second.
A start message is displayed:

EJECT KEY TEST
SLIDING DOOR

Open the front by pushing the release button, then press eject key, and close the front again.
The display shows:

KEYBOARD TEST

Press all the buttons of the keyboard. A specific message appears at each key pressed, e.g.:

MUTE KEY

When all the key are tested, the display shows:

KEYBOARD OK
SOUND ROTARY

Turn the volume button in both directions
The display shows:

KEYBOARD OK
<<SOUND ROTARY>>
MENU ROTARY

Turn the menu button in both directions
The display shows:

KEYBOARD OK
<<SOUND ROTARY>>
<<MENU ROTARY>>
RC5

Press Enter switch of the remote control
The display shows:

KEYBOARD OK
<<SOUND ROTARY>>
<<MENU ROTARY>>
RC5 >> >>`
PRESS ANY KEY->T7

If this test is successful, pressing any key enters the test of the Hardware/Software interface between the processor and the LCD driver, as well between LCD driver and LCD, and functional test of illumination.
The display shows sequentially different patterns, the sequence is done by pressing the CD switch of the keyboard.
At any time, the dimming test can be executed by masking the light sensor (under the 'DISPLAY' key).

To exit this test, switch Off the set.

Patterns:
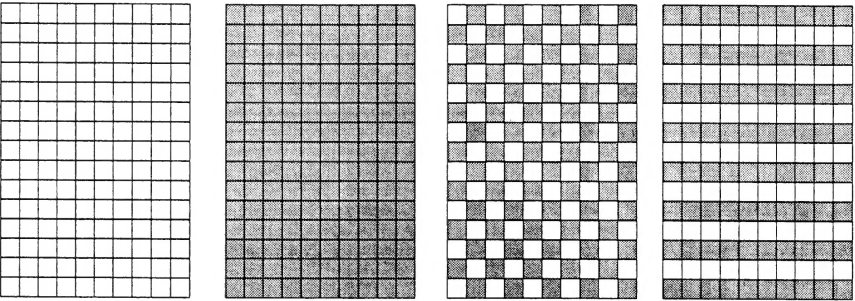
- Service test:
Press Info+ Display+ Power keys
The following cycle is executed continuously:
- Display the same patterns as the previous test, each pattern being displayed during 5 sec.
- Display the real time calculated check-sum of each processor, diring 5 sec.
- Display the soft identity of each processor during 5 sec.
- Display the version of each processor during 5 sec.

To exit this test, switch Off the set.

ELECTRICAL BLOC DIAGRAM

+5V +8V5
[+5] [+3]

+5V
[+5]

TEMP_SENSE
MC_MUTE

+5V +14V4
[+5] [+1]

TU00

TUNER PART

IC96 MODULE

MPX
LEVEL
AM_OUT

SP00

SOUND PROCESS PART

HEF4053BT
TDA8579T/N1
SAA7701

6 PINS
1201
AUX-IN

FL
FR
RL
RR
CARIN_IN

FL
FR
RL
RR
CARIN_IN

PA00

POWER AMPLIFIER PART

2 X TDA1561Q

B1
B2
B3
B4
B5
B6
B7
B8

POWER_MUTE
[PS00]

SDA_AUD
SCL_AUD

CD_CL
CD_WS
CD_DATA

INLOCK

+5V
[+5]

+5V
[+5]

SP01

SOUND PROCESS PART

TDA8579T/N1
TDA8579T/N1
SAA7367T

CARIN_AUD
CARIN_REF
CDC_LEFT
CDC_REF
CDC_RIGHT

TA00

TAPE PART

SCL_AUD SDA_AUD

FL FR RL RR

DECK_REQUEST
N_RESET_DECK
DECK_INSERT

MICRO CONTROLER PART

SDA_AUD
SCL_AUD
RDS_HOLD
RDS_MUTE
PAUSE
PON
DATA_RDS
CLOCK_RDS
MPX_RDS
TEL_SELECT
N_RESET_AUD
CARIN_MUTE
CDC_ON
TEMP_SENSE

+14V4 +8V5 +14V4 +5V
[+1] [+3] [+CDC] [+4]

+14V4 +5V +5V
[+2] [+5] [+4c]

+5V
[+4]

+5V
[+4c]

+5V
[+5d]

+5V
[+4c]

+5V
[+5e]

DECK_INSERT

UP00

ST24E16M6
MC27C1001
P51XAG3
UM6264DM-70LLT
74HC251D
74HC259
74HC573D
HEF4052BT

UP01

ST24E16M6
P83CE560EFB/021

+14V4 +5V
[CDC] [+5]

LO_FL
LO_FR
LO_RL
LO_RR

UP02

MICRO CONTROLER PART 02

MSM6307GS

18 PINS
1650

N_RESET_D2B
D2B_REQUEST
SDA_D2B
SCL_D2B

PS00

POWER SUPPLY PART 00
START UP

VN06SP
MC4558
SAA1305T
L4949EP
LF85CDT
LM9820D

POWER_MUTE
[PA00]

V_LOW
POWER_SENSE
SET_ON
ANTENNA_ON
FRT_REQUEST
SDA_EE0
SCL_EE0
CHANGE_INFO
V_LOW_TIMER
WATCHDOG
RESET_MCO

NO_POWER
POWER
FRT_EJECT
FRT_ON-OFF
AS
FRT_DETACH
TEL_MUTE
FLAP_DOWN

[UP02]

+5V
[+4]

BUS_W_UP
[UP02]

PS01

POWER SUPPLY PART 01

Connector block

Part A

Part B

1802
Front connector

19 PINS

RESET_FRT
SCL_G
SDA_G
ILLUM
SDA_FRT
SCL_FRT
ILLUM_DECK
EL_ON
RESET_DEV

DETACHABLE FRONT

1920
front connector

22RC759/00

B1 B2 B3 B4 B5 B6 B7 B8

22RC759/00

7951

SED1670

CHIP ON BOARD

1950

LCD201-101

7950

SED1531

CHIP ON BOARD

N_RESET
N_SELECT
N_WRITE
N_READ
DATA_CTRL
D0
D1
D2
D3
D4
D5
D6
D7

+5V [+5]

VSS VDD

22RC759/00

TUNER PART
[TU00]

TAPE PART
[TA00]

DECK_TRACK
[UP01]

DECK_METAL
[UP01]

CASS_R
[SP00]

CASS_L
[SP00]

7700
TEA0676T/Y1

PRE AMP
EQ AMP
POWER SUPPLY
LOGIC

+8V5
[xx]

CD

LOADER   DECK_INSERT
[PS00]

+12V   +14V4
[+2]

CLOCK   SCL_AUD
[TU00-SP00-UP01]

DATA   SDA_AUD
[TU00-SP00-UP01]

MRQ   DECK_REQUEST
[UP00]

+5V   +5V
[+5]

RESET   N_RESET_DECK
[UP01]

FRWD R
REV R
FRWD L
REV L

LCA* SCA
P1

MODULE IC96-12CV
1170

AM/FM_ANT2
AM/FM_ANT1

AM OUT

INLOCK
[UP01]

+8V5
[+3]

+5V
[+5]

+8V5
[+3]

AM_OUT
[SP00]

SCL_AUD
[SP00-TA00-UP01]

SDA_AUD
[SP00-TA00-UP01]

LEVEL
[SP00]

MPX
[SP00]

7172
BC847B

14a

CONNECTOR BLOCK SCHEMATIC DIAGRAM

CORRESPONDING PIN ON PWB		
PIN 4		FUSE OUT
PIN 5		FUSE IN
PIN 15		A1
PIN 14		A2
PIN 18		A3
PIN 7		A4
PIN 17		A5
PIN 16		A6
PIN 6		A7
PIN 1		A8
PIN 12		B1
PIN 13		B2
PIN 11		B3
PIN 10		B4
PIN 9		B5
PIN 8		B6
PIN 3		B7
PIN 2		B8
PIN 19		GATEWAY1
PIN 20		GATEWAY2

FUSE

PIN OUT BLOCK A

PIN OUT BLOCK B

CORRESPONDING PIN ON PWB VIA CONNECTOR 18 PINS ITEM 1650		
PIN 2		C1
PIN 1		C2
PIN 3		C3
PIN 4		C4
PIN 5		C5
		C6
PIN 8		C7
PIN 6		C8
PIN 7		C9
PIN 10		C10
PIN 9		C11
PIN 11		C12
PIN 13		C13
PIN 12		C14
PIN 14		C15
PIN 15		C16
		C17
PIN 16		C18
PIN 17		C19
PIN 18		C20

PIN OUT BLOCK C

22RC759/00

SAA1305T

Short description

The SAA1305T is an on/off logic IC which can be used in a car radio to interface between a microprocessor and various input signals such as: Ignition, low supply detection, on/off key, external control signals. It contains 8 inputs with accurate schmitt triggers and clamp circuits. The main function of this IC is an intelligent I/O expander with 2 modes of operation:

1- Normal I/O expander. The uP (master) is running, SAA1305T acts as a slave.
2- Sleep mode of set: the uP is stopped, SAA1305T acts like a master. During an event, the uP is awakened.

The communication with the IC is done via I2C bus.
Extra functions of the SAA1305T are:

-) Blinking LED generator
-) One day clock
-) Watch dog mode

Features

- 8 inputs with accurate schmitt triggers and clamp circuits.
- Ultra low quiescent current.
- Reset generator circuit.
- Changed info output.
- On/off output for controlling a regulator IC which supplies the uP.
- 32KHz RC oscillator and/or a 32KHz X-tal oscillator.
- No delayed reset needed (start-up behaviour oscillator fixed by internal logic)
- Watch dog function.
- Blinking LED oscillator with drive circuit for LED.
- Clock function.

Pinning:

PIN	DESCRIPTION	FUNCTIONAL DESCRIPTION
1 to 8	Input 0 to input 7	All 8 inputs generate resets on pin RESET-PULSE and a low level on pin CHANGE-INFO
9	ON/OFF	Output signal for switched power supply version or A/D supply from uC
10	RESET-IN	Power On or system reset for the IC
11	WATCH-TRIGGER	Input pin for trigger signal form the uC for the hardware watchdog
12	TIMER-START	Trigger input for a 250ms timer (V_LOW timer)
13	TEST-PIN	test pin. This pin must be connected to ground
14	RC-OUT	In/Outputs for the 32.768 KHz RC oscillator
15	RC-IN	
16	X-TAL OUT	In/Outputs for the 32.768 KHz oscillator
17	X-TAL IN	
18	SDA	I2C serial connection to the uC for INPU/clock reading and device control
19	VSS	
20	SCL	I2C serial connection to the uC for INPU/clock reading and device control
21	VDD	
22	LES-OUTPUT	Drives a LED up to 20mA (switch to 5V supply)
23	RESET-PULSE	Reset output (pulse)
24	CHANGE-INFO	A change on any none masked INPUT, a device reset, an alarm or V_LOW timer event, an oscillator fault or a failed I2C read sequence after a change info signal, a failed watchdog trigger sequence, results in a low on this output

A5 ....B1
ANTENNA_ON A1
CHANGE_INFO H9
DECK_INSERT................I3
FLAP_DOWN I3
FRT_DETACH I3

FRT_EJECT H3
FRT_ON-OFF I3
NO_POWER G1
POWER.........................D16
POWER_MUTE.............J16
POWER_SENSE....... C16

RESET_IN F1/K6
RESET_MC0 ....I12
SCL_DEV J3
SDA_DEV......................J3
SET_ON A16
TEL_MUTE..................I4

V_LOW.........................E1/H4
V_LOW_TIMER............I9
WATCHDOG..................J9

POWER SUPPLY PART 00
[PS00]

22RC759/00

1400	C 7
1402	E15
2402	C12
2405	D15
2406	D15
2407	G10
2409	D 6
2410	G 8
2411	D 4
2412	D 8
2413	G 6
2414	G 5
2415	B 1
2416	G 3
2418	G 7
2419	D14
2420	G 5
2423	K 7
2424	K 7
2425	J14
3402	A14
3404	C13
3405	C14
3406	E10
3408	F 7
3411	F 3
3412	F 2
3430	C11
3431	H 9
3432	H 4
3433	H 4
3462	J 4
3463	J 4
3464	J 4
3465	I10
3466	I11
3467	H11
3470	I 1
3471	H I
3472	G11
3473	G11
3474	F 9
3475	F 9
3476	H 2
3477	K 2
3478	F 9
3479	G 9
3480	K 3
3485	J13
3486	I13
3488	I14
3489	I14
5400	D16
5402	K 6
6401	D14
6402	E13
6406	G11
6407	F10
6410	B14
6413	K 2
7401	G 6
7402	H 5
7404	B11
7407	B 3
7409	I11
7410	G10
7418	J15
7430	D 5

set Off
12s
+5V
[+4]
3402
47k
4.6V

SET_ON
[UP00-UP01]

STAT VCC
VN06SP
7404
IN   OUT
GND
2402
220k

3404
220k
BAS216
POWER_SENSE
[UP01]

3405
100k
+14V4
[+1]

5400
97v
POWER
[PS01]

ANTENNA_ON
[UP01-PS01]

7407
A5
[PS01]

2415
220p

+14V4
+2

+8V5
+3

8.5V
LF85CDT
OUT IN
7430
2411
100n

14.2V
2409
1u

1400
SMPS-5V
CONTR
VO

5.3V
2412
100n

set Off
12s
14.2V

6401
S35

2419
1u
2405
4n7
2406
2n2

+5V0
+5

V_LOW
[UP00]
4.9V SO   SI
2.2V
3408
27k

3406
150k
6402
1SR154
1402
2A
+14V4
[+CDC]

RESET_IN
3412
47k
3411
47k
10 RES
5.0V 12 VOUT

3478
10R
3474
10R
3475
10R
3479
10R

6407
1SR154

6406
UD228B

+5V0
+4
2416
47u

L4949EP
7401
Vref
VS 19
13.3V
VZ
2420
100n
2414
100n
2413
100n

2.2V
2410

2418
220n

+5V
[+7]

2.2V
BC847B
7410
0.0V
3473
47k
2407
47p
3472
1k

5.1V
2.2V

NO_POWER
[PS01]

3471
10k

3476
50n
IGNITION

3470
100k

FRT_EJECT
[PS01]

FRT_ON-OFF
[PS01]

TEL_MUTE
[PS01]

FRT_DETACH
[PS01-UP00]

DECK_INSERT
[TA00]

FLAP_DOWN
[PS01]

SDA_DEV
[UP00-UP01]

SCL_DEV

7402
SAA1305T
4.9V 1 IN0
V_LOW
7.1V 2 IN1
4.9V 3 IN2
4.9V 4 IN3
5.0V 5 IN4
0.0V 6 IN5
4.9V 7 IN6
0.0V 8 IN7
4.9V 18 SDA
4.9V 20 SCL

MASK
NEW-LATCH
OLD-LATCH
COMPARE

SERIAL I/O

CHINFO 24
RESETP 23
ON/OFF 9
TIMERS 12
TEST 13
TRIG 11

RESET-GENERATOR

V-LOW TIMER

CLOCK AND ALARM TIMER

TAKTGEN AND OSCILLATOR

WATCHDOG

CHANGE_INFO
[UP00]

0.0V
3467
4k7
5.0V
RESET_MC0
[UP00]

4.9V
TIMER_START
[UP00]

7409
BC847B

3465
47k
3466
47k

+14V4
[+2]
+8V5
[+3]

3488
10k
3489
330k

7418
MC4558

8.2V
0.5V
POWER_MUTE
[PA00]

3485
220k
2425
22n
12.7V

3464
100k
3463
100k
3462
100k

BLINKING LED GEN.
SUPPLY

LED0
RESIN VDD GND XTAI XTAO RCIN RCO
22   10   21 19

0.0V

3477
50n
3480
330R

6413
LSAB70

2424
15p
5402
32kHz/768
2423
15p

[+4]
+5V

[+4]
+5V

WATCHDOG
[UP00]

5V
1s

ANTENNA_ON B14
A1 ....C1/F7
A2 ....E7/I1
A3 ....F1/F7
A5 ....F7
A6 ....A10/F5

B1 ....E7
B2 ....E7
B3 ....D7
B4 ....D7
B5 ....C7
B6 ....D7

B7 ....B7
B8 ....B7
DIMMING H14/H7
EL_ON J9
FLAP_DOWN K15
FRT_DETACH G14

FRT_ON-OFF F14
FRT_REQUEST F14
ILLUM C11
ILLUM_DECK J5
NO_POWER C5
POWER C5

REMOTE_B F4
RESET_FRT A14
SCL_FRT D13
SCL_G G5
SDA_FRT C13
SDA_G G5

BLOCK CONNECTOR

PART A

PART B

C1 C2 C3

FRONT CONNECTOR

RESET_FRT [UP00]
ANTENNA_ON [UP01-PS00]
SDA_FRT [UP00]
SCL_FRT [UP00]
FRT_REQUEST [UP00]
FRT_ON-OFF [PS00]
FRT_EJECT [PS00]
FRT_DETACH [PS00~UP00]
DIMMING

ILLUM [UP00]

+5V [+5]
+8V5 [+3]

TEL_MUTE [PS00]

REMOTE_B [UP01]

SCL_G [UP01]
SDA_G [UP01]

POWER [PS00]
NO_POWER [PS00]

B8 [PA00]
B7 [PA00]
B5 [PA00]
B6 [PA00]
B4 [PA00]
B3 [PA00]
B1 [PA00]
B2 [PA00]
A2 [UP02]
A1
A6
A5 [PS00~UP02]
A3 [UP02]

A1
A3 [SP00]
A2 [SP00]

DIMMING

3.0V-> 4.5V*
3.0V-> 4.5V*
7.0V-> 9.5V*
5.0V-> 6.5V*
8.3V
4.3V-> 5.8V*
~70V->~150V*
0.0V
0.6V

ILLUM_DECK [UP00]
EL_ON [UP00]

7418 MC4558
5800 LSI-AA50
V_LAMP

2.7V
0.0V

⚠ ~150V!

* : Dépending on ambient light.

Electroluminescent foil illumination command

22RC759/00

POWER SUPPLY PART 01 [PS01]

FLAP_DOWN [PS00]

1800 A 8   3840 F15
1802 A16   3841 G15
1803 K16   3842 J13
2801 H12   3851 F 6
2802 I11   3852 B 1
2803 A16   3855 C 2
2805 C16   3858 I 2
2806 D16   3859 C 1
2807 H16   3862 F 1
2808 F16   3863 F 3
2809 E16   3864 F 3
2810 F16   3865 G 6
2811 G16   3866 G 6
2812 B16   3872 F 2
2814 H16   3874 I 2
2850 C 1   5800 I12
2853 G 3   6803 D15
2854 G 2   6804 C15
2856 C 6   6805 F15
2857 F 6   6806 B11
2858 C 6   6807 H15
3812 I 8   6809 F15
3815 J10   6810 G15
3817 G11   6812 I 5
3818 I 9   6813 J 5
3819 H10   6814 A15
3820 A15   6815 H15
3821 J 5   6850 B 1
3822 H15   6852 G 3
3823 A14   7418 H 9
3824 B14   7801 B15
3825 B15   7802 I11
3829 E15   7803 J10
3830 D15   7804 A11
3831 B15   7805 J10
3832 E15   7820 J 5
3833 B13
3834 G15
3835 B12
3836 C13
3837 A11
3838 B11

SOUND PROCESS PART [SP00]

22RC759/00

1402	D 7	2555	J 7	3433	C 3	3874	C 8
2181	G 8	2653	F 7	3462	C 3	4999	D 9
2182	G 8	2654	F 7	3463	C 3	5174	F 8
2183	G 8	2655	F 8	3464	C 3	5205	I 4
2189	E 8	2702	H 4	3465	C 3	5276	G 7
2211	I 4	2703	I 2	3466	C 3	5277	H 7
2228	I 3	2705	I 5	3467	C 2	5278	G 7
2245	I 4	2708	J 3	3470	C 6	6402	C 7
2246	I 4	2709	J 4	3471	C 7	6406	D 2
2247	I 4	2710	J 3	3472	D 2	6407	C 6
2252	C 5	2711	J 3	3473	D 2	6410	C 6
2253	C 5	2805	F 1	3474	A 3	6552	H 7
2254	B 5	2806	G 2	3475	A 3	6804	G 2
2257	C 4	2850	C 7	3476	B 4	6805	F 2
2258	C 4	2853	E 8	3478	A 3	6850	C 7
2262	H 5	2854	C 8	3479	A 3	6852	E 8
2263	C 5	2856	B 8	3480	H 2	7172	E 8
2265	H 4	2857	C 8	3501	D 5	7202	C 5
2268	H 5	2858	B 8	3503	E 2	7204	D 4
2269	C 5	3174	I 8	3505	E 5	7275	G 6
2271	H 4	3175	H 8	3511	D 5	7276	F 7
2275	F 7	3178	F 8	3516	F 2	7277	H 7
2276	G 6	3179	E 8	3524	F 5	7278	I 5
2280	H 7	3186	D 7	3527	F 5	7279	E 7
2281	G 7	3209	I 4	3528	D 4	7301	E 1
2282	G 7	3247	D 5	3529	C 4	7401	C 2
2283	G 7	3249	D 5	3530	C 4	7402	C 3
2284	G 7	3260	H 5	3535	E 5	7407	C 7
2285	G 6	3266	H 5	3539	E 5	7409	C 3
2287	G 6	3269	H 4	3556	I 8	7410	C 2
2288	I 5	3270	G 7	3557	I 8	7502	C 4
2290	H 5	3275	F 7	3558	H 7	7504	E 3
2291	I 5	3276	F 7	3559	J 5	7551	J 7
2293	I 5	3277	G 7	3563	J 8	7700	I 3
2294	I 5			3564	J 8	7802	B 2
2295	E 6	3278	F 7	3565	I 8	7804	F 1
2297	E 8	3279	F 7	3567	J 7	7805	B 3
2301	A 5	3280	F 7	3574	I 5		
2304	B 4	3281	G 7	3575	H 7		
2305	A 7	3282	H 6	3659	E 7		
2308	A 7	3283	H 6	3665	E 7		
2309	A 6	3284	H 6	3700	J 4		
2311	B 5	3285	G 7	3702	I 4		
2312	A 4	3286	G 7	3703	H 3		
2317	A 6	3287	G 6	3704	I 3		
2318	B 5	3288	G 6	3705	I 4		
2320	A 4	3289	I 5	3709	I 2		
2321	B 6	3291	F 7	3710	I 2		
2322	A 5	3292	E 7	3711	J 2		
2325	A 7	3299	H 7	3712	J 4		
2328	B 7	3300	A 7	3713	J 4		
2329	C 7	3301	D 6	3714	J 3		
2330	A 5	3302	D 6	3715	J 3		
2407	D 2	3303	B 6	3716	I 6		
2413	C 1	3304	B 4	3719	J 4		
2415	C 8	3307	B 4	3815	B 3		
2418	C 1	3308	B 5	3817	D 7		
2420	C 1	3309	A 4	3823	G 1		
2423	D 3	3310	A 5	3829	C 7		
2424	D 3	3311	A 6	3830	F 2		
2501	E 4	3312	A 8	3831	F 2		
2505	F 5	3314	B 7	3832	F 1		
2506	E 6	3317	D 1	3833	D 6		
2507	D 2	3318	E 1	3835	G 1		
2510	F 6	3319	B 3	3838	D 7		
2511	E 6	3320	B 3	3842	A 2		
2512	F 5	3321	A 7	3851	D 7		
2513	F 5	3324	B 7	3852	C 7		
2514	F 6	3326	B 4	3855	C 3		
2515	G 6	3404	C 6	3858	C 8		
2516	F 2	3405	D 6	3859	C 8		
2521	E 4	3406	C 2	3862	C 8		
2522	F 2	3408	C 1	3863	D 8		
2525	F 5	3411	C 2	3864	D 8		
2526	F 5	3412	C 2	3865	D 8		
2534	D 3	3431	E 2	3866	D 8		
2535	E 5	3432	C 3	3872	C 8		

1170	G 8	2323	B 7	3226	I 2	3818	E 1
1201	C 6	2324	B 3	3227	I 2	3819	E 2
1400	B 1	2402	C 5	3228	H 4	3820	G 1
1500	E 2	2405	B 5	3229	H 5	3821	G 1
1550	I 6	2406	A 7	3230	H 4	3822	E 1
1650	F 7	2409	J 6	3231	I 2	3824	C 7
1701	J 3	2410	A 3	3234	I 2	3825	F 2
1703	B 3	2411	I 6	3235	I 2	3834	E 2
1800	B 8	2412	D 5	3236	I 4	3836	F 2
1802	F 1	2414	D 2	3238	G 3	3837	H 1
1803	G 1	2416	D 2	3239	G 3	3840	F 2
2202	I 5	2419	B 6	3241	C 5	3841	E 2
2203	J 2	2425	E 1	3271	H 6	4651	C 6
2204	H 4	2500	E 2	3272	H 6	4652	D 7
2205	H 5	2509	D 5	3293	G 2	5172	G 8
2206	H 5	2517	G 3	3294	H 2	5173	G 7
2207	H 5	2518	D 5	3295	G 2	5200	I 3
2208	I 2	2520	E 7	3296	H 2	5201	I 4
2209	I 4	2523	F 4	3297	H 2	5202	J 2
2210	H 4	2524	F 5	3305	A 5	5203	J 2
2212	G 3	2531	D 5	3306	A 5	5204	I 4
2213	H 4	2532	D 5	3313	B 7	5275	G 7
2214	H 4	2533	D 5	3316	A 5	5400	B 6
2215	H 4	2536	E 5	3325	A 5	5402	D 3
2216	H 4	2537	E 6	3329	A 5	5500	E 2
2217	H 4	2538	D 6	3402	D 6	5550	H 7
2218	H 3	2550	I 7	3430	C 5	5551	I 6
2219	G 3	2551	I 7	3477	H 1	5650	F 7
2220	H 3	2552	J 6	3485	E 1	5651	G 7
2221	H 3	2553	H 7	3486	E 2	5800	B 2
2222	G 3	2554	I 6	3488	D 2	6200	G 4
2223	G 3	2561	J 7	3489	E 2	6300	D 6
2224	H 3	2562	J 7	3502	F 3	6301	E 2
2225	H 4	2565	H 8	3504	E 2	6401	B 7
2226	H 4	2566	H 8	3506	E 2	6413	H 1
2229	I 2	2650	F 7	3507	E 3	6551	H 8
2230	I 2	2651	G 6	3509	E 4	6653	G 7
2231	G 3	2656	F 7	3510	F 5	6654	G 7
2232	J 2	2657	E 6	3512	F 5	6803	F 2
2233	I 5	2700	J 4	3513	F 5	6806	F 2
2234	I 5	2701	J 4	3514	F 5	6807	E 2
2235	H 4	2704	I 5	3515	G 5	6809	F 2
2236	H 5	2706	J 5	3517	F 5	6810	E 2
2237	I 4	2707	J 4	3518	E 5	6812	H 1
2238	I 3	2801	D 1	3531	E 5	6813	H 1
2239	I 4	2802	H 1	3532	E 5	6814	G 1
2240	G 4	2803	G 1	3533	E 5	6815	E 1
2241	H 4	2807	E 1	3534	F 5	7200	I 2
2242	H 2	2808	F 1	3536	E 5	7201	H 3
2243	H 2	2809	F 2	3537	D 5	7290	G 2
2244	H 2	2810	F 2	3538	D 5	7291	G 2
2248	H 7	2811	E 1	3540	E 5	7302	A 4
2250	H 2	2812	F 1	3541	F 3	7303	A 6
2251	I 2	2814	E 2	3550	I 6	7404	C 5
2255	C 5	3201	H 5	3552	H 6	7418	E 1
2256	C 5	3202	H 5	3553	H 6	7430	J 5
2260	H 2	3203	H 5	3554	I 8	7500	E 4
2261	G 5	3204	H 5	3555	I 7	7501	E 3
2264	G 5	3205	H 5	3560	J 6	7503	E 7
2267	G 4	3206	I 2	3561	J 7	7505	E 5
2270	G 4	3207	I 1	3562	J 7	7506	F 5
2274	D 5	3208	G 3	3568	J 7	7507	F 5
2277	G 3	3210	H 4	3569	J 6	7508	F 4
2278	G 2	3211	H 4	3572	H 7	7550	I 7
2279	G 2	3212	H 5	3573	H 7	7552	I 7
2286	G 6	3213	G 4	3576	H 7	7650	F 7
2289	I 5	3214	I 3	3577	H 6	7801	F 2
2292	H 5	3216	H 3	3578	H 8	7803	C 2
2296	H 2	3217	G 3	3579	H 8	7820	G 2
2298	G 7	3218	H 3	3580	G 6		
2299	D 7	3219	H 3	3652	F 6		
2300	B 7	3220	G 3	3653	E 6		
2302	B 3	3221	G 3	3654	E 7		
2303	A 5	3222	H 3	3658	E 7		
2306	A 5	3223	G 3	3660	D 7		
2307	B 4	3224	H 4	3701	D 4		
2316	B 4	3225	I 2	3812	E 1		

21a

SOUND PROCESS PART 01
[SP01]

CARIN_AUD B9
CARIN_L F11
CARIN_MUTE D6
CARIN_REF C8
CDC_LEFT E1
CDC_ON A1

CDC_REF F1
CDC_RIGHT G1
CD_CL C4
CD_DATA B4
CD_L B9/F5
CD_R C9/F5

CD_WS C4
FL F6
FR G6
LO_FL F7
LO_FR G7
LO_RL F11

LO_RR G11
RL F9
RR G9

7277 SAA7367T
1 SFOR   SLAVE 24
2 STDn   VDDA 23
3 OVLD   VREFL 22
4 CKIN   BIL 21
5 VDDD   BOL 20
6 VSSD   VDACP 19
7 SDO   VDACN 18
8 SWS   BOR 17
9 SCK   BIR 16
10 TEST1   VREFR 15
11 HPEN   IREF 14
12 TEST2   VSSA 13

7279 TDA8579T/N1
7278 TDA8579T/N1

CDC_ON [UP00]
CD_DATA
CD_WS
CD_CL

CARIN_AUD [UP02]
CARIN_REF [UP02]

CARIN_MUTE [UP01]
7291 BC857B
CARIN_R [SP00]
7290 BC857B
CARIN_L [SP00]

CDC_LEFT [UP02]
CDC_REF [UP02]
CDC_RIGHT [UP02]

CD_L
CD_R

FL [PA00-SP00]
FR [PA00-SP00]
RL [PA00-SP00]
RR [PA00-SP00]

LO_FL [UP02]
LO_FR [UP02]
LO_RL [UP02]
LO_RR [UP02]

TO SP00 AND PA00

22RC759/00

22a

1202	A 8	3277	B 2
2260	D 8	3278	B 2
2261	F 6	3279	C 2
2262	F 7	3280	C 2
2264	G 6	3281	A 3
2265	G10	3282	B 5
2267	F 9	3283	C 5
2268	G 7	3284	C 5
2270	G 9	3285	A 7
2271	F10	3286	B 8
2272	A 8	3287	C 8
2275	B 3	3288	C 7
2276	C 2	3289	F 2
2277	E 9	3291	C 9
2278	E 6	3292	C 9
2279	F 9	3293	D 6
2280	B 5	3294	E 8
2281	B 7	3295	E 9
2282	A 7	3296	D 8
2283	B 9	3297	D 9
2284	B 7	3299	C 5
2285	C 8	5275	B 2
2286	C 7	5276	B 2
2287	C 7	5277	A 5
2288	E 2	5278	A 8
2289	F 2	7275	B 3
2290	G 2	7276	C 3
2291	E 3	7277	A 6
2292	F 4	7278	E 2
2293	F 4	7279	B10
2294	F 4	7290	E 8
2295	B11	7291	D 8
2296	E 8		
2297	B 9		
2298	C11		
2299	C 9		
3260	F 7		
3263	G10		
3266	G 7		
3269	F10		
3270	B 4		
3271	C 8		
3272	B 9		
3275	B 1		
3276	C 1		

POWER AMPLIFIER PART
[PA00]

22RC759/00

B1	C16	B7	I16	RL	J1
B2	D16	B8	J16	RR	C1
B3	D16	FL	H1	SI	A5/B8/G8
B4	E16	FR	E1	TEMP_SENSE	K1
B5	H16	MC_MUTE	B1		
B6	I16	POWER_MUTE	B1		

+5V [+5]

3319 10k → SI

POWER_MUTE [PS00] 6301 BAS216
MC_MUTE [UP01] 6300 BAS216

100n 2324
2323

4.8V

3317 47k 0.1V
7301 BC847B
3318 47k 0.0V

+14V4 [+1]

SI

2320 100n

7.1V   14.3V

RR [SP00-SP01] 3326 10k
3304 10k
2304 3.0V
7302 TDA1561Q
1 5 7
7.1V
6 7.1V
B1 [PS01]

RR

3309 4R7
2312 10n

2316 3.0V 100n
13.5V 12
1/2 V
11 4.8V 7.1V
B2 [PS01]

3310 2k7 2301
2322
9 7.1V
B3 [PS01]

FR [SP00-SP01] 3325 10k
3305 10k
2306 3.0V 2302
13
8 7.1V

3308 4R7
2311 10n
2302

FR

B4 [PS01]

3303 4R7
2321 100n
3307 4R7
2318 100n

+14V4 [+1]

SI

2317 100n

FL [SP00-SP01] 3316 10k
3306 10k
2303
7303 TDA1561Q
1 5 7
B5 [PS01]

3311 4R7
2309 10n

FL

2330 100n
1/2 V
12 11
B6 [PS01]

3313 2k7 2300
2323
3
5

RL [SP00-SP01] 3300 10k
3314 10k
2305
13
9
B7 [PS01]

3312 4R7
2308 10n
2307

RL

B8 [PS01]

3321 4R7
2325 100n
3324 4R7
2328 100n

TO CDSP GROUND

+5V [+5]

3302 3k3

TEMP_SENSE [UP01]

2329 10n 3301 22k 3329 4700R

2300	I	8
2301	D	8
2302	E	10
2303	H	8
2304	C	8
2305	J	7
2306	E	8
2307	J	10
2308	J	11
2309	H	11
2311	E	11
2312	C	11
2316	D	8
2317	G	9
2318	F	12
2320	B	9
2321	F	11
2322	D	8
2323	I	8
2324	A	4
2325	K	11
2328	K	12
2329	K	2
2330	I	8
3300	J	6
3301	K	2
3302	K	2
3303	F	11
3304	C	7
3305	E	7
3306	H	7
3307	F	12
3308	E	11
3309	C	11
3310	D	7
3311	H	11
3312	I	11
3313	I	7
3314	J	7
3316	H	6
3317	B	4
3318	B	4
3319	A	4
3320	B	5
3321	J	11
3324	J	12
3325	E	6
3326	C	6
3329	K	3
6300	B	2
6301	B	2
7301	B	5
7302	C	8
7303	H	8

22RC759/00

uP CONTROLLER PART 00
[UP00]

HEF4052BT

LOGIC LEVEL CONVERSION

7503

DECODER 4 OF 1

SCL_DEV
SCL_D2B
SCL_FRT
SDA_DEV
SDA_D2B
SDA_FRT

7501
P51XAG3

7508
M27C2001-90C6

7500
UM62640W-70LLT

7506
74HC259

7507
74HC251D

7502
ST24E16M6

24MHZ

ST_BY

EL_ON [PS01]
RESET_DEV [UP01]
WATCHDOG [PS00]
ST_BY
N_RESET_D2B [UP02]
RESET_FRT [PS01]
SET_ON [PS00-UP01]
ILLUM_DECK [PS01]

CHANGE_INFO [PS00]
MCI_WORKING [UP01]
MCI_REQUEST [UP01]
FRT_REQUEST [PS01]
ILLUM [PS01]
D2B_REQUEST [UP02]

READ_IO

RESET_MC0 [PS00]

V_LOW [PS00-UP01]
TIMER_START [PS01] (TS_TRIG)

SDA_DEV
SCL_DEV

7505 74HC00D
7504

74HC00D Quad 2-input nand gate

SYMBOL	PIN	DESCRIPTION
1A to 4A	1, 4, 9, 12	data inputs
1B to 4B	2, 5, 10, 13	data inputs
1Y to 4Y	3, 6, 8, 11	data outputs
GND	7	Ground (0V)
VCC	14	positive supply voltage
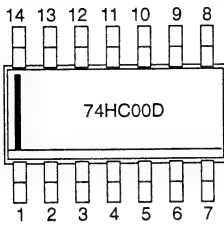
FUNCTION TABLE

INPUTS		OUTPUT
nA	nB	nY
L	L	H
L	H	H
H	L	H
H	H	L

74HC573D Octal D-type transparent latch; 3-state

SYMBOL	PIN	DESCRIPTION
$\overline{OE}$	1	3-state output enable input (active LOW)
D_0 to D_7	2 to 9	data inputs
GND	10	Ground (0V)
LE	11	latch enable input (active HIGH)
Q_7 to Q_0	12 to 19	3-state latch outputs
V_{CC}	20	positive supply voltage
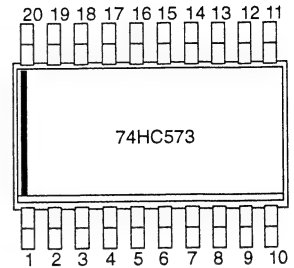
HEF4052B Dual 4 channel analogue multi/demultiplexer

SYMBOL	PIN	DESCRIPTION
Y_{0A} to Y_{3A}	12, 14, 15, 11	independent inputs/outputs
Y_{0B} to Y_{3B}	1, 2, 5, 4	independent inputs/outputs
A_0, A_1	10, 9	address inputs
$\overline{E}$	6	enable input (active LOW)
Z_A, Z_B	13, 3	common inputs/outputs
V_{SS}	8	Ground (0V)
V_{DD}	16	positive supply voltage
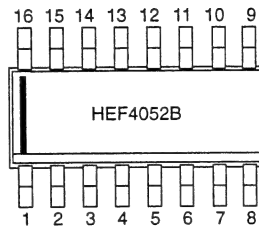
FUNCTION TABLE

INPUTS			channel ON
$\overline{E}$	A_1	A_0	
L	L	L	Y_{0A}-Z_A; Y_{0B}-Z_B
L	L	H	Y_{1A}-Z_A; Y_{1B}-Z_B
L	H	L	Y_{2A}-Z_A; Y_{2B}-Z_B
L	H	H	Y_{3A}-Z_A; Y_{3B}-Z_B
H	X	X	none

74HC251D 8-input multiplexer; 3-state

SYMBOL	PIN	DESCRIPTION
I_0 to I_7	4,3,2,1,15,14,13,12	Multiplexer inputs
Y	5	Multiplexer output
$\overline{Y}$	6	Complementary multiplexer output
$\overline{OE}$	7	3-state output enable input (active LOW)
GND	8	Ground
S_0, S_1, S_2	11, 10, 9	select inputs
V_{CC}	16	Positive supply voltage
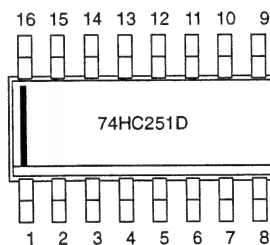
FUNCTION TABLE

INPUTS												OUTPUTS	
$\overline{OE}$	S_2	S_1	S_0	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	$\overline{Y}$	Y
H	X	X	X	X	X	X	X	X	X	X	X	Z	Z
L	L	L	L	L	X	X	X	X	X	X	X	H	L
L	L	L	L	H	X	X	X	X	X	X	X	L	H
L	L	L	H	X	L	X	X	X	X	X	X	H	L
L	L	L	H	X	H	X	X	X	X	X	X	L	H
L	L	H	L	X	X	L	X	X	X	X	X	H	L
L	L	H	L	X	X	H	X	X	X	X	X	L	H
L	L	H	H	X	X	X	L	X	X	X	X	H	L
L	L	H	H	X	X	X	H	X	X	X	X	L	H
L	H	L	L	X	X	X	X	L	X	X	X	H	L
L	H	L	L	X	X	X	X	H	X	X	X	L	H
L	H	L	H	X	X	X	X	X	L	X	X	H	L
L	H	L	H	X	X	X	X	X	H	X	X	L	H
L	H	H	L	X	X	X	X	X	X	L	X	H	L
L	H	H	L	X	X	X	X	X	X	H	X	L	H
L	H	H	H	X	X	X	X	X	X	X	L	H	L
L	H	H	H	X	X	X	X	X	X	X	H	L	H

74HC259D 8-addressable latch

SYMBOL	PIN	DESCRIPTION
A_0 to A_2	1,2,3	Address inputs
Q_0 to Q_7	4, 5, 6, 7, 9, 10, 11, 12	Latch outputs
GND	8	Ground
D	13	Data input
$\overline{LE}$	14	latch enable input (active LOW)
$\overline{MR}$	15	conditional reset input (active LOW)
V_{CC}	16	Positive supply voltage

FUNCTION TABLE

OPERATING MODES	INPUTS						OUTPUTS							
	$\overline{MR}$	$\overline{LE}$	D	A0	A1	A2	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7
master reset	L	H	X	X	X	X	L	L	L	L	L	L	L	L
demuliplex (active HIGH) decoder (when D=H)	L	L	d	L	L	L	Q=d	L	L	L	L	L	L	L
	L	L	d	H	L	L	L	Q=d	L	L	L	L	L	L
	L	L	d	L	H	L	L	L	Q=d	L	L	L	L	L
	L	L	d	H	H	L	L	L	L	Q=d	L	L	L	L
	L	L	d	L	L	H	L	L	L	L	Q=d	L	L	L
	L	L	d	H	L	H	L	L	L	L	L	Q=d	L	L
	L	L	d	L	H	H	L	L	L	L	L	L	Q=d	L
	L	L	d	H	H	H	L	L	L	L	L	L	L	Q=d
store (do nothing)	H	H	X	X	X	X	q_0	q_1	q_2	q_3	q_4	q_5	q_6	q_7
addressable latch	H	L	d	L	L	L	Q=d	q_1	q_2	q_3	q_4	q_5	q_6	q_6
	H	L	d	H	L	L	q_0	Q=d	q_2	q_3	q_4	q_5	q_6	q_6
	H	L	d	L	H	L	q_0	q_1	Q=d	q_3	q_4	q_5	q_6	q_6
	H	L	d	H	H	L	q_0	q_1	q_2	Q=d	q_4	q_5	q_6	q_6
	H	L	d	L	L	H	q_0	q_1	q_2	q_3	Q=d	q_5	q_6	q_6
	H	L	d	H	L	H	q_0	q_1	q_2	q_3	q_4	Q=d	q_6	q_6
	H	L	d	L	H	H	q_0	q_1	q_2	q_3	q_4	q_5	Q=d	q_6
	H	L	d	H	H	H	q_0	q_1	q_2	q_3	q_4	q_5	q_6	Q=d

H=HIGH voltage level.
L= LOW voltage level.
X= don't care.
d= HIGH or LOW data one set-up time prior to the LOW-to-HIGH $\overline{LE}$ transition.
q= lower case letters indicate the state of the referenced output established during the last cycle in which it was addressed or cleared.

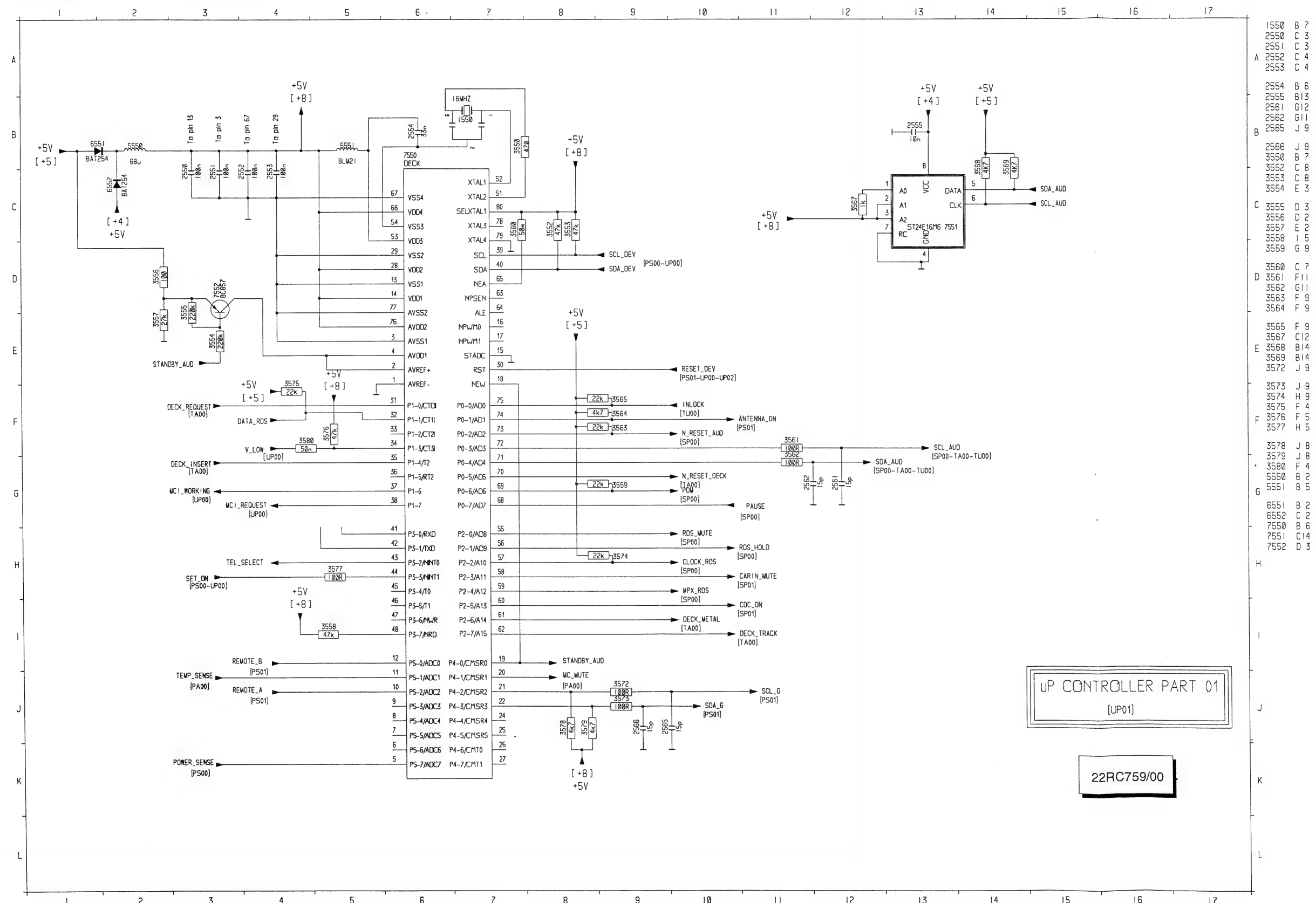DC voltages of microprocessor (FM mode, set tuned)

1	0.0V GND	41	N.C.
2	5.1V	42	N.C.
3	0.0V GND	43	4.8V
4	5.1V VDD	44	4.6V
5	4.4V	45	N.C.
6	N.C.	46	N.C.
7	N.C.	47	N.C.
8	N.C.	48	4.8V
9	N.C.	49	N.C.
10	0.5V	50	N.C.
11	0.8V	51	2.5V 16MHz
12	N.C.	52	2.1V 16MHz
13	0.0V GND	53	4.8V VDD
14	4.9 V VDD	54	0.0V
15	0.0V GND	55	4.8V
16	N.C.	56	4.8V
17	N.C.	57	4.9V
18	0.0V	58	4.8V
19	0.0V	59	0.0V
20	0.0V	60	0.0V
21	4.9V	61	N.C.
22	4.8V	62	N.C.
23	N.C.	63	N.C.
24	N.C.	64	N.C.
25	N.C.	65	4.8V
26	N.C.	66	4.8V VDD
27	N.C.	67	GND
28	5.0V VDD	68	0.0V
29	0.0V GND	69	0.0V
30	0.0V	70	0.0V
31	4.9V	71	5.0V
32	4.4V	72	4.9V
33	N.C.	73	5.1V
34	4.9V	74	5.2V
35	4.9V	75	5.2V
36	N.C.	76	4.9V VDD
37	4.8V	77	GND
38	4.9V	78	N.C.
39	4.8V	79	0.0V GND
40	4.8V	80	4.8V

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ANTENNA_ON...............F10
CARIN_MUTE...............H10
CDC_ON......................I10
CLOCK_RDS H10
DATA_RDS F4
DECK_INSERT G3

DECK_METAL I10
DECK_REQUEST F3
DECK_TRACK...............I10
INLOCK F10
MCI_REQUEST.............G4
MCI_WORKING.............G3

MC_MUTE J8
MPX_RDS.....................H10
N_RESET_AUD.............F10
N_RESET_DECK..........G10
PAUSE.........................G10
POM.............................G10

POWER_SENSE...........K3
RDS_HOLD H10
RDS_MUTE H10
REMOTE_A J4
REMOTE_B I4
RESET_DEV................E10

SCL_AUD C15/F13
SCL_DEV D9
SCL_G J11
SDA_AUD C15/G12
SDA_DEV D9
SDA_G J10

SET_ON.......................H3
STANDBY_AUD.............E3/I8
TEL_SELECT H3
TEMP_SENSE...............J3
V_LOW F4

1550	B 7	
2550	C 3	
2551	C 3	
2552	C 4	
2553	C 4	
2554	B 6	
2555	B13	
2561	G12	
2562	G11	
2565	J 9	
2566	J 9	
3550	B 7	
3552	C 8	
3553	C 8	
3554	E 3	
3555	D 3	
3556	D 2	
3557	E 2	
3558	I 5	
3559	G 9	
3560	C 7	
3561	F11	
3562	G11	
3563	F 9	
3564	F 9	
3565	F 9	
3567	C12	
3568	B14	
3569	B14	
3572	J 9	
3573	J 9	
3574	H 9	
3575	F 4	
3576	F 7	
3577	H 5	
3578	J 8	
3579	J 8	
3580	F 4	
5550	B 2	
5551	B 5	
6551	B 2	
6552	C 2	
7550	B 6	
7551	C14	
7552	D 3	

uP CONTROLLER PART 01

[UP01]

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22RC759/00 PWB LAYOUT - BOTTOMSIDE VIEW

1402	D 7	2555	J 7	3433	C 3	3874 C 8
2181	G 8	2653	F 7	3462	C 3	4999 D 9
2182	G 8	2654	F 7	3463	C 3	5174 F 8
2183	G 8	2655	F 8	3464	C 3	5205 I 4
2189	E 8	2702	H 4	3465	C 3	5276 G 7
2211	I 4	2703	I 2	3466	C 3	5277 H 7
2228	I 3	2705	I 5	3467	C 2	5278 G 7
2245	I 4	2708	J 3	3470	C 6	6402 C 7
2246	I 4	2709	J 4	3471	C 7	6406 D 2
2247	I 4	2710	J 3	3472	D 2	6407 C 6
2252	C 5	2711	J 3	3473	D 2	6410 C 6
2253	C 5	2805	F 1	3474	A 3	6552 H 7
2254	B 5	2806	G 2	3475	A 3	6804 G 2
2257	C 4	2850	C 7	3476	B 4	6805 F 2
2258	C 4	2853	E 8	3478	A 3	6850 C 7
2262	H 5	2854	C 8	3479	A 3	6852 E 8
2263	C 5	2856	B 8	3480	H 2	7172 E 8
2265	H 4	2857	C 8	3501	D 5	7202 C 5
2268	H 5	2858	B 8	3503	E 2	7204 D 5
2269	C 5	3174	E 8	3505	E 5	7275 G 6
2271	H 4	3175	H 8	3511	D 5	7276 F 7
2275	F 7	3178	F 8	3516	F 2	7277 H 7
2276	G 6	3179	E 8	3524	F 5	7278 I 5
2280	H 7	3186	D 7	3527	F 5	7279 E 7
2281	G 7	3209	I 4	3528	D 4	7301 E 1
2282	G 7	3247	D 5	3529	C 4	7401 C 2
2283	G 7	3249	D 5	3530	C 4	7402 C 3
2284	G 7	3260	H 5	3535	E 5	7407 C 7
2285	G 6	3263	H 4	3539	E 5	7409 C 3
2287	G 6	3266	H 5	3556	I 8	7410 C 2
2288	I 5	3269	H 4	3557	I 8	7502 C 4
2290	H 5	3270	G 7	3558	H 7	7504 E 3
2291	I 5	3275	F 7	3559	J 5	7551 J 7
2293	I 5	3276	F 7	3563	J 8	7700 I 3
2294	I 5	3277	G 7	3564	J 8	7802 B 2
2295	E 6	3278	F 7	3565	I 8	7804 F 1
2297	E 8	3279	F 7	3567	J 7	7805 B 3
2301	A 5	3280	F 7	3574	I 5	
2304	B 4	3281	G 7	3575	H 7	
2305	A 7	3282	H 6	3659	E 7	
2308	A 7	3283	H 6	3665	E 7	
2309	A 6	3284	H 6	3700	J 4	
2311	B 5	3285	G 7	3702	I 4	
2312	A 4	3286	G 7	3703	H 3	
2317	A 6	3287	G 6	3704	I 3	
2318	B 5	3288	G 6	3705	I 4	
2320	A 4	3289	I 5	3709	I 2	
2321	B 6	3291	F 7	3710	I 2	
2322	A 5	3292	E 7	3711	J 2	
2325	A 7	3299	H 7	3712	J 4	
2328	B 7	3300	A 7	3713	J 4	
2329	C 7	3301	D 6	3714	J 3	
2330	A 5	3302	D 6	3715	J 3	
2407	D 2	3303	B 6	3716	I 6	
2413	C 1	3304	B 4	3719	D 4	
2415	C 8	3307	B 4	3815	B 3	
2418	C 1	3308	B 5	3817	D 2	
2420	C 1	3309	A 4	3823	G 1	
2423	D 3	3310	A 5	3829	F 2	
2424	D 3	3311	A 6	3830	F 2	
2501	E 4	3312	A 8	3831	F 2	
2505	F 5	3314	B 7	3832	F 1	
2506	E 6	3317	D 1	3833	D 6	
2507	D 2	3318	E 1	3835	G 1	
2510	F 6	3319	B 3	3838	D 7	
2511	E 6	3320	B 3	3842	A 2	
2512	F 5	3321	A 7	3851	D 7	
2513	F 5	3324	B 7	3852	C 7	
2514	F 6	3326	B 4	3855	C 3	
2515	G 6	3404	C 6	3858	C 8	
2516	F 2	3405	D 6	3859	C 8	
2521	E 4	3406	C 2	3862	C 8	
2522	F 2	3408	C 1	3863	D 8	
2525	F 5	3411	C 2	3864	D 8	
2526	F 5	3412	C 1	3865	D 8	
2534	D 3	3431	E 2	3866	D 8	
2535	E 5	3432	C 3	3872	C 8	

Ref	Loc	Ref	Loc	Ref	Loc	Ref	Loc
1170	G 8	2323	B 7	3226	I 2	3818	E 1
1201	C 6	2324	B 3	3227	I 2	3819	E 2
1400	B 1	2402	C 5	3228	H 4	3820	G 1
1500	E 2	2405	B 5	3229	H 5	3821	G 1
1550	I 6	2406	A 7	3230	H 4	3822	E 1
1650	F 7	2409	J 6	3231	I 2	3824	C 7
1701	J 3	2410	A 3	3234	I 2	3825	F 2
1703	B 3	2411	I 6	3235	I 2	3834	E 2
1800	B 8	2412	D 5	3236	I 4	3836	F 2
1802	F 1	2414	D 2	3238	G 3	3837	H 1
1803	G 1	2416	D 2	3239	G 3	3840	F 2
2202	I 5	2419	B 6	3241	C 5	3841	E 2
2203	J 2	2425	E 1	3271	H 6	4651	C 6
2204	H 4	2500	D 5	3272	H 6	4652	D 7
2205	H 5	2509	D 5	3293	G 2	5172	G 8
2206	H 5	2517	G 3	3294	H 2	5173	G 7
2207	H 5	2518	D 5	3295	G 2	5200	I 3
2208	I 2	2520	E 7	3296	H 2	5201	I 4
2209	I 4	2523	F 4	3297	H 2	5202	I 4
2210	H 4	2524	F 5	3305	A 5	5203	J 2
2212	G 3	2531	D 5	3306	A 5	5204	I 4
2213	H 4	2532	D 5	3313	B 7	5275	G 7
2214	H 4	2533	D 5	3316	A 5	5400	B 6
2215	H 4	2536	E 5	3325	A 5	5402	D 3
2216	H 4	2537	E 6	3329	A 5	5500	E 2
2217	H 4	2538	D 6	3402	D 6	5550	H 7
2218	H 3	2550	I 7	3430	C 5	5551	I 6
2219	H 3	2551	I 7	3477	H 1	5650	F 7
2220	H 3	2552	J 6	3485	E 1	5651	G 7
2221	H 3	2553	H 7	3486	E 2	5800	B 2
2222	G 3	2554	I 6	3488	D 2	6200	G 4
2223	G 3	2561	J 7	3489	E 2	6300	D 6
2224	H 4	2562	J 7	3502	F 3	6301	D 2
2225	H 4	2565	H 8	3504	E 2	6401	B 7
2226	H 4	2566	H 8	3506	E 2	6413	H 1
2229	I 2	2650	F 7	3507	E 3	6551	H 8
2230	I 4	2651	G 6	3509	E 4	6653	G 7
2231	G 3	2656	F 7	3510	F 5	6654	G 7
2232	J 2	2657	E 6	3512	F 5	6803	F 2
2233	I 5	2700	J 4	3513	F 5	6806	F 2
2234	I 5	2701	J 4	3514	F 5	6807	E 2
2235	H 4	2704	I 5	3515	G 5	6809	F 2
2236	H 5	2706	J 5	3517	F 5	6810	E 2
2237	J 4	2707	J 4	3518	E 5	6812	H 1
2238	I 3	2801	D 1	3531	E 5	6813	H 1
2239	I 4	2802	H 1	3532	E 5	6814	G 1
2240	G 4	2803	G 1	3533	E 5	6815	E 1
2241	H 4	2807	E 1	3534	F 5	7200	I 2
2242	H 2	2808	F 1	3536	E 5	7201	H 3
2243	H 2	2809	F 2	3537	D 5	7290	G 2
2244	H 2	2810	F 2	3538	D 5	7291	G 2
2248	H 4	2811	E 1	3540	E 5	7302	A 4
2250	H 2	2812	F 1	3541	F 3	7303	A 6
2251	I 2	2814	E 2	3550	I 6	7404	C 5
2255	C 5	3201	H 5	3552	H 6	7418	E 1
2256	C 5	3202	H 5	3553	H 6	7430	J 5
2260	H 2	3203	H 5	3554	I 8	7500	E 4
2261	G 5	3204	H 5	3555	I 7	7501	E 3
2264	G 5	3205	H 5	3560	J 6	7503	E 7
2267	G 4	3206	I 2	3561	J 7	7505	E 5
2270	G 4	3207	I 1	3562	J 7	7506	F 5
2274	D 5	3208	G 3	3568	J 7	7507	F 5
2277	G 3	3211	H 4	3569	J 6	7508	F 4
2278	G 2	3212	H 5	3572	H 7	7550	I 7
2279	G 2	3213	G 4	3573	H 7	7552	I 7
2286	G 6	3214	I 3	3576	H 7	7650	F 7
2289	I 5	3216	H 3	3577	H 6	7801	F 2
2292	H 5	3217	G 3	3578	H 8	7803	C 2
2296	H 2	3218	H 3	3579	H 8	7820	G 2
2298	G 7	3219	H 3	3580	G 6		
2299	D 7	3220	G 3	3652	F 6		
2300	B 7	3221	G 3	3653	E 6		
2302	B 3	3222	H 3	3654	E 7		
2303	A 5	3223	G 3	3658	E 7		
2306	A 5	3224	H 4	3660	D 7		
2307	B 4	3225	I 2	3701	D 4		
2316	B 4			3812	E 1		

CARIN_AUD B9	LO_FL A9	SCL_D2B D1
CARIN_REF B9	LO_FR A9	SDA_D2B D1
CDC_LEFT E9	LO_RL A9	
CDC_REF D9	LO_RR A9	
CDC_RIGHT E9	NO_POWER B9	
D2B_REQUEST A1	N_RESET_D2B B1	

	1	2	3	4	5	6	7	8	9	10	11

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uP CONTROLLER PART 02
[UP02]

22RC759/00
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MSM6307GS 7650

MSM6307GS D²B IC

SYMBOL	I/O	DESCRIPTION
POR	I	Power on - reset
R / W	I	Read / Write selector
DS	I	Data strobe to access data bus
A / D	I	Selects address or data on D0 ~ d7
SDA	I/O	I²C data signal input / output
SCL	I/O	I²C clock signal input / output
I2C	I	Selects I²C or parallel interface
INT	O	Interrupt output
BUSIN	I	D2B input (TTL level)
BUSOUT	O	D2B output (TTL level)
DBN & DBP	I/Os	Differential D2B lines of the internal driver/ receiver, to be terminated with 60Ω
TEST	I	Selects the test mode for factory purposes
6MCI	I	Clock input 6MHz resonator or X-TAL
6MCO	O	Clock output 6MHz resonator or X-TAL
D0 ~ D7	I/Os	8-bit bi-directional address or data bus
A0 ~ A2	I	Programmables I²C slave addresses

MSM6307 pin labels:
D5, D6, D7, NC, R/W, A/D, I2C, DS, INT, A0, A1, A2, NC, SDA, SCL, GND
D4, D3, D2, D1, NC, NC, D0, POR, 6MCI, 6MCO, BUSIN, BUSOUT, TEST, DBP, DBN, NC, VDD

1650	E	10
2650	C	2
2651	E	6
2653	E	9
2654	E	9
2655	E	10
2656	B	4
2657	B	3
3652	C	3
3653	C	2
3654	C	1
3658	C	6
3659	A	3
3660	D	6
3665	A	10
4651	F	9
4652	G	9
5650	B	3
5651	E	6
6653	C	6
6654	D	6
7650	D	4

Signal labels and component references:
+5V [+5], 3659 47k, D2B_REQUEST [UP00], N_RESET_D2B [UP00], 2650 10n, +5V [+5], 4.9V, 3654 47k, 3653 47k, [PS01-UP00-UP01], SDA_D2B, SCL_D2B [PS01-UP00-UP01], 5.2V, 6.00Mhz, 2657 15p, 5650, 2656 15p, 3652 1k, 2.5V, 5.2V, 26 8 9 POR DS INT, 24 25 21 CLKO CLKI TEST, 22 23 BUSO BUSI, I²C, D²B, 14 SDA, 15 SCL, 7 I2C, SLAVE ADRESSE A0 A1 A2, 10 11 12, PARALLEL DATA IN/OUT D0 D1 D2 D3 D4 D5 D6 D7, 27 29 30 31 32 1 2 3, D2B+ 20, D2B- 19, R/W 5, A/D 6, +VCC 17, GND, 16, 3.3V, 3658 8R2, 6653 PTZ5.6A, DB+, DB-, 1.5V, 3660 8R2, 6654 PTZ5.6A, +5V [+5], 5651 BLM21, 2651 100n

LO_RR [SP01] 1, LO_RL [SP01] 2, 3665 50m 3, LO_FL [SP01] 4, LO_FR 5, CARIN_AUD [SP01] 6, CARIN_REF [SP01] 7, NO_POWER [PS00~PS01] 8, 9, 10, DB- 11, DB- 12, DB+ 13, +14V4 [+CDC] 14, 15, [SP01] CDC_REF 16, CDC_LEFT [SP01] 17, CDC_RIGHT [SP01] 18

2653 100p, 2654 100p, 2655 100p

1650

4651

4652

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73	4822 532 11092	BUFFER MOUNTING	
92	4822 492 71046	SPRING MOUNTING	
98	4822 492 71046	SPRING MOUNTING	
115	4822 265 10717	CONNECTOR AERIAL ASSY	
131	4822 320 12285	CABLE ASSY	
170	4822 691 10694	CDM-M2/1.2	
200	4822 459 05049	PLATE ORNAMENTAL FIXED ASSY	
201	4822 459 05051	DETACHABLE UNIT ASSY	
213	4822 600 10778	CASE DETACHABLE UNIT ASSY	
353	4822 404 20437	BRACKET	
369	4822 321 11012	ADAPTER POWER	
370	4822 320 11637	CABLE ADAPTER L.S	
371	4822 320 11638	CABLE LINE OUT	
372	4822 443 30463	SLEEVE	
375	4822 736 15995	DIRECTIONS FOR USE	

Miscellaneous		
1170	4822 210 10721	TUNER
1400	4822 218 11862	S.M.P.S. ASSY 5,3V 1,2A
1402	4822 253 30446	2,00A 32V 3,02X1,6X1,2 F
1500	4822 242 10868	CSTCS24.00MX040 R
1550	4822 242 10564	CSTCS16.00MX040-TC
1800	4822 265 10941	CON. BLOCK ASSY ABC V3

—⊦⊦—		
2181	5322 122 32531	100pF 5% NP0 50V
2182	5322 122 32654	22nF 10% X7R 63V
2183	5322 122 32654	22nF 10% X7R 63V
2189	4822 126 13196	100nF 10% 0805 X7R 25V
2202	5322 122 34123	1nF 10% X7R 50V
2203	4822 126 13196	100nF 10% 0805 X7R 25V
2204	4822 126 13849	220nF 10% 16V
2205	4822 126 13849	220nF 10% 16V
2206	5322 126 10223	4,7nF 10% X7R 63V
2207	5322 126 10223	4,7nF 10% X7R 63V
2208	5322 122 32531	100pF 5% NP0 50V
2209	4822 126 12105	33nF 5% X7R 63V
2210	5322 122 32654	22nF 10% X7R 63V
2211	4822 126 13196	100nF 10% 0805 X7R 25V
2212	5322 122 34098	10nF 10% X7R 63V
2213	5322 122 34098	10nF 10% X7R 63V
2214	5322 122 31863	330pF 5% NP0 50V
2215	5322 122 33538	150pF 2% NP0 63V
2216	5322 122 31863	330pF 5% NP0 50V
2217	5322 122 34123	1nF 10% X7R 50V
2218	5322 122 34123	1nF 10% X7R 50V
2219	5322 122 34098	10nF 10% X7R 63V
2220	5322 122 34123	1nF 10% X7R 50V
2221	5322 122 34123	1nF 10% X7R 50V
2222	5322 122 34098	10nF 10% X7R 63V
2223	5322 122 34098	10nF 10% X7R 63V
2224	5322 122 34123	1nF 10% X7R 50V
2225	4822 126 13196	100nF 10% 0805 X7R 25V
2226	5322 122 34123	1nF 10% X7R 50V
2228	4822 126 13196	100nF 10% 0805 X7R 25V
2229	5322 122 32531	100pF 5% NP0 50V
2230	5322 122 32531	100pF 5% NP0 50V
2231	4822 126 13196	100nF 10% 0805 X7R 25V
2232	4822 126 13196	100nF 10% 0805 X7R 25V
2233	5322 122 31863	330pF 5% NP0 50V
2234	5322 122 31863	330pF 5%NP0 50V
2235	5322 122 34123	1nF 10%X7R 50V
2236	5322 122 34123	1nF 10%X7R 50V
2237	4822 124 23279	22µF 20% 16V
2238	4822 124 23582	220µF 10V
2239	4822 124 11952	100µF 20% 16V
2240	4822 124 23279	22µF 20% 16V
2241	4822 126 14043	1µF +80-20% 16V
2242	4822 124 23279	22µF 20% 16V
2243	4822 124 23282	1µF 20% 50V
2244	5322 122 34123	1nF 10%X7R 50V
2245	5322 122 32269	6,8pF 5% 50V
2246	5322 122 32269	6,8pF 5% 50V
2247	5322 122 34123	1nF 10%X7R 50V
2248	4822 122 33575	220pF 5%NP0 50V

—⊦⊦—		
2250	5322 122 32531	100pF 5% NP0 50V
2251	5322 122 32531	100pF 5% NP0 50V
2252	4822 126 13849	220nF 10% 16V
2253	4822 126 13849	220nF 10% 16V
2254	4822 126 13196	100nF 10% 0805 X7R 25V
2255	4822 124 23279	22µF 20% 16V
2256	4822 124 22646	47µF 20% 16V
2257	4822 126 14043	1µF +80-20% 16V
2258	4822 126 14043	1µF +80-20% 16V
2260	4822 126 13849	220nF 10% 16V
2261	4822 124 41017	10µF 16V
2262	5322 122 34123	1nF 10% X7R 50V
2263	4822 126 13849	220nF 10% 16V
2264	4822 124 41017	10µF 16V
2265	5322 122 34123	1nF 10% X7R 50V
2267	4822 124 41017	10µF 16V
2268	5322 122 34123	1nF 10% X7R 50V
2269	5322 122 34123	1nF 10% X7R 50V
2270	4822 124 41017	10µF 16V
2271	5322 122 34123	1nF 10% X7R 50V
2272	4822 124 12294	SM CAP 220µF 6,3V
2274	4822 124 23279	22µF 20% 16V
2275	5322 122 32448	10pF 5% 50V
2276	5322 122 32659	33pF 5% 50V
2277	4822 126 14043	1µF +80-20% 16V
2278	5322 122 34123	1nF 10%X7R 50V
2279	4822 126 14043	1µF +80-20% 16V
2280	4822 126 13849	220nF 10% 16V
2281	4822 126 13196	100nF 10% 0805 X7R 25V
2282	4822 126 13849	220nF 10% 16V
2283	4822 126 13694	68pF 1% NP0 63V
2284	4822 126 13196	100nF 10% 0805 X7R 25V
2285	4822 126 13694	68pF 1% NP0 63V
2286	4822 126 13196	100nF 10% 0805 X7R 25V
2287	5322 122 32654	22nF 10% X7R 63V
2288	4822 126 13849	220nF 10% 16V
2289	4822 124 23279	22µF 20% 16V
2290	4822 126 13849	220nF 10% 16V
2291	4822 126 13196	100nF 10% 0805 X7R 25V
2292	4822 124 22646	47µF 20% 16V
2293	4822 126 14043	1µF +80-20% 16V
2294	4822 126 14043	1µF +80-20% 16V
2295	4822 126 13196	100nF 10% 0805 X7R 25V
2296	4822 126 13849	220nF 10% 16V
2297	4822 126 13849	220nF 10% 16V
2298	4822 124 22646	47µF 20% 16V
2299	4822 124 23279	22µF 20% 16V
2300	4822 126 14043	1µF +80-20% 16V
2301	4822 126 14043	1µF +80-20% 16V
2302	4822 124 80061	1000µF 20% 25V
2303	4822 126 14043	1µF +80-20% 16V
2304	4822 126 14043	1µF +80-20% 16V
2305	4822 126 14043	1µF +80-20% 16V
2306	4822 126 14043	1µF +80-20% 16V
2307	4822 124 80061	1000µF 20% 25V
2308	5322 122 34098	10nF 10% X7R 63V
2309	5322 122 34098	10nF 10% X7R 63V
2311	5322 122 34098	10nF 10% X7R 63V
2312	5322 122 34098	10nF 10% X7R 63V
2316	4822 126 13196	100nF 10% 0805 X7R 25V

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2317	4822 126 13196	100nF 10% 0805 X7R 25V
2318	4822 126 13196	100nF 10% 0805 X7R 25V
2320	4822 126 13196	100nF 10% 0805 X7R 25V
2321	4822 126 13196	100nF 10% 0805 X7R 25V
2322	4822 126 14043	1µF +80-20% 16V
2323	4822 126 14043	1µF +80-20% 16V
2324	4822 124 80453	100µF 20% 10V
2325	4822 126 13196	100nF 10% 0805 X7R 25V
2328	4822 126 13196	100nF 10% 0805 X7R 25V
2329	5322 122 34098	10nF 10%X7R 63V
2330	4822 126 13196	100nF 10% 0805 X7R 25V
2402	4822 126 12105	33nF 5%X7R 63V
2405	4822 124 80769	2200µF 20% 16V
2406	4822 124 23308	2200µF 20% 16V
2407	5322 122 32268	470pF 10% 50V
2409	4822 126 13849	220nF 10% 16V
2410	4822 124 80061	1000µF 20% 25V
2411	4822 124 11952	100µF 20% 16V
2412	4822 124 12085	100µF 20% SM 16V
2413	4822 126 14043	1µF +80-20% 16V
2414	4822 124 23282	1µF 20% 50V
2415	4822 122 33575	220pF 5%NP0 50V
2416	4822 124 22646	47µF 20% 16V
2418	4822 126 13849	220nF 10% 16V
2419	5322 126 10223	4,7nF 10%X7R 63V
2420	4822 126 13196	100nF 10% 0805 X7R 25V
2423	4822 126 13486	15pF 2% NP0 63V
2424	4822 126 13486	15pF 2% NP0 63V
2425	5322 122 32654	22nF 10%X7R 63V
2500	5322 122 34098	10nF 10%X7R 63V
2501	5322 122 34098	10nF 10%X7R 63V
2505	5322 122 34123	1nF 10%X7R 50V
2506	5322 122 34123	1nF 10%X7R 50V
2507	5322 122 34123	1nF 10%X7R 50V
2509	5322 122 34123	1nF 10%X7R 50V
2510	5322 122 34123	1nF 10%X7R 50V
2511	5322 122 34123	1nF 10%X7R 50V
2512	5322 122 34123	1nF 10%X7R 50V
2513	5322 122 34123	1nF 10%X7R 50V
2514	5322 122 34123	1nF 10%X7R 50V
2515	5322 122 34123	1nF 10%X7R 50V
2516	5322 122 34123	1nF 10%X7R 50V
2517	5322 122 34123	1nF 10%X7R 50V
2518	5322 122 34098	10nF 10%X7R 63V
2520	5322 122 34098	10nF 10%X7R 63V
2521	5322 122 34098	10nF 10%X7R 63V
2522	5322 122 34098	10nF 10%X7R 63V
2523	5322 122 34098	10nF 10%X7R 63V
2524	5322 122 34098	10nF 10%X7R 63V
2525	5322 122 34098	10nF 10%X7R 63V
2526	5322 122 34098	10nF 10%X7R 63V
2531	5322 122 34123	1nF 10%X7R 50V
2532	5322 122 34123	1nF 10%X7R 50V
2533	5322 122 34123	1nF 10%X7R 50V
2534	5322 122 34123	1nF 10%X7R 50V
2535	4822 126 13486	15pF 2% NP0 63V
2536	4822 126 13486	15pF 2% NP0 63V
2537	4822 126 13486	15pF 2% NP0 63V
2538	4822 126 13486	15pF 2% NP0 63V
2550	4822 126 13196	100nF 10% 0805 X7R 25V
2551	4822 126 13196	100nF 10% 0805 X7R 25V
2552	4822 126 13196	100nF 10% 0805 X7R 25V
2553	4822 126 13196	100nF 10% 0805 X7R 25V
2554	4822 126 12105	33nF 5%X7R 63V
2555	5322 122 34098	10nF 10%X7R 63V
2561	4822 126 13486	15pF 2% NP0 63V
2562	4822 126 13486	15pF 2% NP0 63V
2565	4822 126 13486	15pF 2% NP0 63V
2566	4822 126 13486	15pF 2% NP0 63V
2650	5322 122 34098	10nF 10%X7R 63V
2651	4822 126 13196	100nF 10% 0805 X7R 25V
2653	5322 122 32531	100pF 5%NP0 50V
2654	5322 122 32531	100pF 5%NP0 50V
2655	5322 122 32531	100pF 5%NP0 50V
2656	4822 126 13486	15pF 2% NP0 63V
2657	4822 126 13486	15pF 2% NP0 63V
2700	4822 124 41017	10µF 16V
2701	4822 124 41017	10µF 16V
2702	5322 122 34098	10nF 10%X7R 63V
2703	5322 122 34098	10nF 10%X7R 63V
2704	4822 124 11952	100µF 20% 16V
2705	5322 122 32654	22nF 10%X7R 63V
2706	4822 124 41017	10µF 16V
2707	4822 124 11952	100µF 20% 16V
2708	5322 116 80853	560pF 5%NP0 63V
2709	5322 116 80853	560pF 5%NP0 63V
2710	5322 116 80853	560pF 5%NP0 63V
2711	5322 116 80853	560PF 5%NP0 63V
2801	4822 124 23582	220µF 10V
2802	4822 124 23582	220µF 10V
2803	5322 122 32268	470pF 10% 50V
2805	5322 122 32531	100pF 5%NP0 50V
2806	5322 122 32531	100pF 5%NP0 50V
2807	5322 122 32268	470pF 10% 50V
2808	5322 122 32268	470pF 10% 50V
2809	5322 122 32268	470pF 10% 50V
2810	5322 122 32268	470pF 10% 50V
2811	5322 122 32268	470pF 10% 50V
2812	5322 122 32268	470pF 10% 50V
2814	5322 122 32268	470pF 10% 50V
2850	5322 122 34123	1nF 10%X7R 50V
2853	5322 122 34123	1nF 10%X7R 50V
2854	5322 122 34098	10nF 10%X7R 63V
2856	4822 122 33575	220pF 5%NP0 50V
2857	4822 122 33575	220pF 5%NP0 50V
2858	4822 122 33575	220pF 5%NP0 50V

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3174	4822 051 20332	3K30 5% 0,1W
3175	4822 051 20102	1KΩ 5% 0,1W
3178	4822 051 20008	0Ω JUMP. (0805)
3179	4822 051 20008	0Ω JUMP. (0805)
3186	4822 117 11449	2K2 1% 0,1W
3201	4822 051 20273	27KΩ 5% 0,1W
3202	4822 051 20273	27KΩ 5% 0,1W
3203	4822 117 11449	2K2 1% 0,1W
3204	4822 117 11449	2K2 1% 0,1W
3205	4822 117 10833	10K 1% 0,1W
3212	4822 117 10833	10K 1% 0,1W
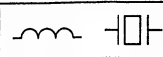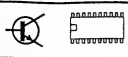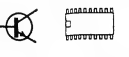
Pos	Nr	Value	Pos	Nr	Value
3206	4822 117 11503	220R 1% 0.1W	3297	4822 051 20104	100KΩ 5% 0,1W
3207	4822 051 20101	100Ω 5% 0,1W	3299	4822 051 20109	10Ω 5% 0,1W
3208	4822 051 20101	100Ω 5% 0,1W	3300	4822 117 10833	10K 1% 0,1W
3209	4822 051 20104	100KΩ 5% 0,1W	3301	4822 051 20223	22KΩ 5% 0,1W
3210	4822 051 20332	3K30 5% 0,1W	3302	4822 051 20332	3KΩ 5% 0,1W
3211	4822 051 20332	3K30 5% 0,1W	3303	4822 051 20478	4Ω7 5% 0,1W
3213	4822 051 20562	5K6 5% 0,1W 0805	3304	4822 117 10833	10KΩ 1% 0,1W
3214	4822 051 20101	100Ω 5% 0,1W	3305	4822 117 10833	10KΩ 1% 0,1W
3216	4822 117 12955	2K7 1% 0,1W 0805	3306	4822 117 10833	10KΩ 1% 0,1W
3217	4822 051 20101	100Ω 5% 0,1W	3307	4822 051 20478	4Ω7 5% 0,1W
3218	4822 117 12955	2K7 1% 0,1W 0805	3308	4822 051 20478	4Ω7 5% 0,1W
3219	4822 117 12955	2K7 1% 0,1W 0805	3309	4822 051 20478	4Ω7 5% 0,1W
3220	4822 051 20101	100Ω 5% 0,1W	3310	4822 117 12955	2K7 1% 0,1W 0805
3221	4822 051 20101	100Ω 5% 0,1W	3311	4822 051 20478	4Ω7 5% 0,1W
3222	4822 117 12955	2K7 1% 0,1W 0805	3312	4822 051 20478	4Ω7 5% 0,1W
3223	4822 117 10965	18K 1% 0,1W	3313	4822 117 12955	2K7 1% 0,1W 0805
3224	4822 051 20102	1KΩ 5% 0,1W	3314	4822 117 10833	10KΩ 1% 0,1W
3225	4822 117 10834	47K 1% 0,1W	3316	4822 117 10833	10KΩ 1% 0,1W
3226	4822 117 11503	220Ω 1% 0.1W	3317	4822 117 10834	47KΩ 1% 0,1W
3227	4822 117 11503	220Ω 1% 0.1W	3318	4822 117 10834	47KΩ 1% 0,1W
3228	4822 051 20273	27KΩ 5% 0,1W	3319	4822 117 10833	10KΩ 1% 0,1W
3229	4822 051 20472	4K70 5% 0,1W	3320	4822 051 20101	100Ω 5% 0,1W
3230	4822 051 20472	4K70 5% 0,1W	3321	4822 051 20478	4Ω7 5% 0,1W
3231	4822 051 20472	4K70 5% 0,1W	3324	4822 051 20478	4Ω7 5% 0,1W
3234	4822 117 11503	220Ω 1% 0.1W	3325	4822 117 10833	10KΩ 1% 0,1W
3235	4822 117 11503	220Ω 1% 0.1W	3326	4822 117 10833	10KΩ 1% 0,1W
3236	4822 051 20101	100Ω 5% 0,1W	3329	4822 116 10062	470Ω 50% 16V PTC 0805
3238	4822 117 12955	2K7 1% 0,1W 0805	3402	4822 117 10834	47KΩ 1% 0,1W
3239	4822 117 12955	2K7 1% 0,1W 0805	3404	4822 051 20224	220KΩ 5% 0,1W
3241	4822 051 20105	1MΩ 5% 0,1W	3405	4822 051 20104	100KΩ 5% 0,1W
3247	4822 051 20105	1MΩ 5% 0,1W	3406	4822 051 20154	150KΩ 5% 0,1W
3249	4822 051 20008	0Ω JUMP. (0805)	3408	4822 051 20273	27KΩ 5% 0,1W
3260	4822 051 20223	22KΩ 5% 0,1W	3411	4822 117 10834	47KΩ 1% 0,1W
3263	4822 051 20223	22KΩ 5% 0,1W	3412	4822 117 10834	47KΩ 1% 0,1W
3266	4822 051 20223	22KΩ 5% 0,1W	3430	4822 051 20109	10Ω 5% 0,1W
3269	4822 051 20223	22KΩ 5% 0,1W	3431	4822 117 10834	47KΩ 1% 0,1W
3270	4822 051 20122	1K20 5% 0,1W	3432	4822 117 10834	47KΩ 1% 0,1W
3271	4822 117 11383	12KΩ 1% 0,1W	3433	4822 117 10834	47KΩ 1% 0,1W
3272	4822 117 11383	12KΩ 1% 0,1W	3462	4822 051 20104	100KΩ 5% 0,1W
3275	4822 051 20472	4K70 5% 0,1W	3463	4822 051 20104	100KΩ 5% 0,1W
3276	4822 117 11139	1K5 1% 0,1W	3464	4822 051 20104	100KΩ 5% 0,1W
3277	4822 051 20122	1K20 5% 0,1W	3465	4822 117 10834	47KΩ 1% 0,1W
3278	4822 117 11149	82KΩ 1% 0,1W	3466	4822 117 10834	47KΩ 1% 0,1W
3279	4822 117 10833	10KΩ 1% 0,1W	3467	4822 051 20472	4K70 5% 0,1W
3280	4822 117 10834	47KΩ 1% 0,1W	3470	4822 051 20104	100KΩ 5% 0,1W
3281	4822 051 20472	4K70 5% 0,1W	3471	4822 117 10833	10KΩ 1% 0,1W
3282	4822 051 20331	330Ω 5% 0,1W	3472	4822 051 20102	1KΩ 5% 0,1W
3283	4822 051 20331	330Ω 5% 0,1W	3473	4822 117 10834	47KΩ 1% 0,1W
3284	4822 051 20331	330Ω 5% 0,1W	3474	4822 051 20109	10Ω 5% 0,1W
3285	4822 051 20478	4R70 5% 0,1W	3475	4822 051 20109	10Ω 5% 0,1W
3286	4822 117 10833	10KΩ 1% 0,1W	3476	4822 051 20008	0Ω JUMP. (0805)
3287	4822 117 10833	10KΩ 1% 0,1W	3477	4822 051 20008	0Ω JUMP. (0805)
3288	4822 051 20333	33KΩ 5% 0,1W	3478	4822 051 20109	10Ω 5% 0,1W
3289	4822 051 20105	1MΩ 5% 0,1W	3479	4822 051 20109	10Ω 5% 0,1W
3291	4822 051 20105	1M00 5% 0,1W	3480	4822 051 20331	330Ω 5% 0,1W
3292	4822 051 20008	0Ω JUMP. (0805)	3485	4822 051 20224	220KΩ 5% 0,1W
3293	4822 117 11139	1K5 1% 0,1W	3486	4822 051 20273	27KΩ 5% 0,1W
3294	4822 051 20224	220KΩ 5% 0,1W	3488	4822 117 10833	10KΩ 1% 0,1W
3295	4822 051 20104	100KΩ 5% 0,1W	3489	4822 051 20334	330KΩ 5% 0,1W
3296	4822 051 20224	220KΩ 5% 0,1W	3501	4822 051 20101	100Ω 5% 0,1W

Pos	Nr	Value	Pos	Nr	Value
3502	4822 051 20008	0Ω JUMP. (0805)	3653	4822 117 10834	47KΩ 1% 0,1W
3503	4822 051 20102	1KΩ 5% 0,1W	3654	4822 117 10834	47KΩ 1% 0,1W
3504	4822 051 20471	470Ω 5% 0,1W	3658	4822 116 10063	8,2Ω 25% 30V PTC
3505	4822 051 20101	100Ω 5% 0,1W	3659	4822 117 10834	47KΩ 1% 0,1W
3506	4822 051 20102	1KΩ 5% 0,1W	3660	4822 116 10063	8,2Ω 25% 30V PTC
3507	4822 051 20102	1KΩ 5% 0,1W	3665	4822 051 20008	0Ω JUMP. (0805)
3509	4822 051 20008	0Ω JUMP. (0805)	3700	4822 051 20273	27KΩ 5% 0,1W
3510	4822 117 11449	2K2 1% 0,1W	3701	4822 051 20008	0Ω JUMP. (0805)
3511	4822 051 20101	100Ω 5% 0,1W	3702	4822 051 20122	1K2 5% 0,1W
3512	4822 051 20101	100Ω 5% 0,1W	3703	4822 051 20334	330KΩ 5% 0,1W
3513	4822 051 20472	4K7 5% 0,1W	3704	4822 051 20822	8K20 5% 0,1W
3514	4822 051 20101	100Ω 5% 0,1W	3705	4822 117 10965	18KΩ 1% 0,1W
3515	4822 051 20101	100Ω 5% 0,1W	3709	4822 051 20334	330KΩ 5% 0,1W
3516	4822 051 20101	100Ω 5% 0,1W	3710	4822 051 20822	8K2 5% 0,1W
3517	4822 051 20101	100Ω 5% 0,1W	3711	4822 051 20122	1K2 5% 0,1W
3518	4822 117 10834	47KΩ 1% 0,1W	3712	4822 051 20104	100KΩ 5% 0,1W
3524	4822 117 10834	47KΩ 1% 0,1W	3713	4822 051 20104	100KΩ 5% 0,1W
3527	4822 051 20101	100Ω 5% 0,1W	3714	4822 051 20104	100KΩ 5% 0,1W
3528	4822 051 20102	1KΩ 5% 0,1W	3715	4822 051 20104	100KΩ 5% 0,1W
3529	4822 117 10834	47KΩ 1% 0,1W	3716	4822 051 20109	10Ω 5% 0,1W
3530	4822 117 10834	47KΩ 1% 0,1W	3719	4822 051 20008	0Ω JUMP. (0805)
3531	4822 051 20472	4K7 5% 0,1W	3812	4822 051 20104	100KΩ 5% 0,1W
3532	4822 051 20101	100Ω 5% 0,1W	3815	4822 117 10834	47KΩ 1% 0,1W
3533	4822 051 20101	100Ω 5% 0,1W	3817	4822 051 20228	2Ω2 5% 0,1W
3534	4822 051 20101	100Ω 5% 0,1W	3818	4822 117 10834	47KΩ 1% 0,1W
3535	4822 051 20101	100Ω 5% 0,1W	3819	4822 051 20472	4K7 5% 0,1W
3536	4822 051 20101	100Ω 5% 0,1W	3820	4822 051 20331	330Ω 5% 0,1W
3537	4822 051 20101	100Ω 5% 0,1W	3821	4822 051 20101	100Ω 5% 0,1W
3538	4822 051 20101	100Ω 5% 0,1W	3822	4822 051 20331	330Ω 5% 0,1W
3539	4822 051 20472	4K7 5% 0,1W	3823	4822 051 20331	330Ω 5% 0,1W
3540	4822 051 20472	4K7 5% 0,1W	3824	4822 051 20472	4K7 5% 0,1W
3541	4822 051 20008	0Ω JUMP. (0805)	3825	4822 051 20101	100Ω 5% 0,1W
3550	4822 051 20471	470Ω 5% 0,1W	3829	4822 051 20472	4K7 5% 0,1W
3552	4822 117 10834	47KΩ 1% 0,1W	3830	4822 117 11503	220Ω 1% 0.1W
3553	4822 117 10834	47KΩ 1% 0,1W	3831	4822 117 11503	220Ω 1% 0.1W
3554	4822 051 20224	220KΩ 5% 0,1W	3832	4822 051 20331	330Ω 5% 0,1W
3555	4822 051 20224	220KΩ 5% 0,1W	3833	4822 117 10834	47KΩ 1% 0,1W
3556	4822 051 20101	100Ω 5% 0,1W	3834	4822 051 20102	1KΩ 5% 0,1W
3557	4822 051 20273	27KΩ 5% 0,1W	3835	4822 117 10833	10KΩ 1% 0,1W
3558	4822 117 10834	47KΩ 1% 0,1W	3836	4822 117 10834	47KΩ 1% 0,1W
3559	4822 051 20223	22KΩ 5% 0,1W	3837	4822 051 20101	100Ω 5% 0,1W
3560	4822 051 20008	0Ω JUMP. (0805)	3838	4822 051 20102	1KΩ 5% 0,1W
3561	4822 051 20101	100Ω 5% 0,1W	3840	4822 051 20102	1KΩ 5% 0,1W
3562	4822 051 20101	100Ω 5% 0,1W	3841	4822 051 20102	1KΩ 5% 0,1W
3563	4822 051 20223	22KΩ 5% 0,1W	3842	4822 051 20105	1MΩ 5% 0,1W
3564	4822 051 20472	4K7 5% 0,1W	3851	4822 051 20008	0Ω JUMP. (0805)
3565	4822 051 20223	22KΩ 5% 0,1W	3852	4822 117 10833	10KΩ 1% 0,1W
3567	4822 051 20102	1KΩ 5% 0,1W	3855	4822 117 10833	10KΩ 1% 0,1W
3568	4822 051 20472	4K7 5% 0,1W	3858	4822 051 20008	0Ω JUMP. (0805)
3569	4822 051 20472	4K7 5% 0,1W	3859	4822 051 20008	0Ω JUMP. (0805)
3572	4822 051 20101	100Ω 5% 0,1W	3862	4822 051 20471	470Ω 5% 0,1W
3573	4822 051 20101	100Ω 5% 0,1W	3863	4822 051 20101	100Ω 5% 0,1W
3574	4822 051 20223	22KΩ 5% 0,1W	3864	4822 051 20104	100KΩ 5% 0,1W
3575	4822 051 20223	22KΩ 5% 0,1W	3865	4822 051 20101	100Ω 5% 0,1W
3576	4822 117 10834	47KΩ 1% 0,1W	3866	4822 051 20101	100Ω 5% 0,1W
3577	4822 051 20101	100Ω 5% 0,1W	3872	4822 051 20101	100Ω 5% 0,1W
3578	4822 051 20472	4K7 5% 0,1W	3874	4822 051 20008	0Ω JUMP. (0805)
3579	4822 051 20472	4K7 5% 0,1W			
3580	4822 051 20008	0Ω JUMP. (0805)			
3652	4822 051 20102	1KΩ 5% 0,1W			

5172	4822 157 10975	120UH 10%
5173	4822 157 71184	10UH 10%
5174	4822 157 71206	BLM21A601SPT
5200	4822 157 71206	BLM21A601SPT
5201	4822 242 10565	K1101-95880-211
5202	4822 157 71184	10UH 10%
5203	4822 157 10976	68UH 10%
5204	4822 157 71206	BLM21A601SPT
5205	4822 157 10977	4,7UH 10%
5275	4822 242 81164	AT-51(11.2896MHZ)
5276	4822 157 71206	BLM21A601SPT
5277	4822 157 71206	BLM21A601SPT
5278	4822 157 71206	BLM21A601SPT
5400	4822 157 70935	COIL ASSY 97UH 10A
5402	4822 242 10398	TJ125DHB2 (32,768KHZ)
5500	4822 157 71206	BLM21A601SPT
5550	4822 157 10976	68UH 10%
5551	4822 157 71206	BLM21A601SPT
5650	4822 242 10709	CSTCS6.00MG-TC
5651	4822 157 71206	BLM21A601SPT
5800	4822 209 16297	7299-1

6200	4822 130 10654	BAT254
6300	4822 130 83757	BAS216
6301	4822 130 83757	BAS216
6401	4822 130 10488	S3G
6402	4822 130 10655	1SR154-400
6406	4822 130 10656	UDZ20B
6407	4822 130 10655	1SR154-400
6410	4822 130 83757	BAS216
6413	4822 130 11174	LSA670-JM
6551	4822 130 10654	BAT254
6552	4822 130 10654	BAT254
6653	4822 130 10657	PTZ5.6A
6654	4822 130 10657	PTZ5.6A
6803	4822 130 10185	UDZ5.6B
6804	4822 130 10185	UDZ5.6B
6805	4822 130 10185	UDZ5.6B
6806	4822 130 10185	UDZ5.6B
6807	4822 130 10185	UDZ5.6B
6809	4822 130 10185	UDZ5.6B
6810	4822 130 10185	UDZ5.6B
6812	4822 130 11175	LST670-JK
6813	4822 130 11175	LST670-JK
6814	4822 130 10185	UDZ5.6B
6815	4822 130 10185	UDZ5.6B
6850	4822 130 83757	BAS216
6852	4822 130 10185	UDZ5.6B

7172	4822 130 60511	BC847B
7200	4822 130 60511	BC847B
7201	4822 209 15479	SAA7701H/N212
7202	4822 209 33985	TDA8579T/N1
7204	5322 209 14481	HEF4053BT
7275	4822 130 60511	BC847B
7276	4822 130 60511	BC847B
7277	4822 209 16148	SAA7367T
7278	4822 209 33985	TDA8579T/N1

7279	4822 209 33985	TDA8579T/N1
7290	5322 130 60508	BC857B
7291	5322 130 60508	BC857B
7301	4822 130 60511	BC847B
7302	4822 209 16278	TDA1561Q/N2
7303	4822 209 16278	TDA1561Q/N2
7401	4822 209 14814	L4949NP
7402	4822 209 16279	SAA1305T
7404	4822 209 14815	VN06SP
7407	4822 209 15826	L9820D
7409	4822 130 60511	BC847B
7410	4822 130 60511	BC847B
7418	4822 209 33162	MC4558IDT
7430	4822 209 16281	LF85CDT
7500	4822 209 31553	FCB61C65LL-70T
7501	4822 209 16282	P51XAG30KFBD
7503	5322 209 11102	HEF4052BT
7504	5322 209 60424	74HC573D
7505	4822 209 30426	74HC00D
7506	4822 209 91136	PC74HC259T
7507	4822 209 14819	74HC251D
7508	4822 209 16719	M27C2001-90C6
7550	4822 209 16721	P87CE560EFFB
7552	5322 130 60508	BC857B
7650	4822 209 32743	MSM6307GS
7700	4822 209 15349	TEA0676T/V1
7801	4822 130 60511	BC847B
7802	5322 130 63033	BCP56
7803	4822 130 60511	BC847B
7804	4822 130 60511	BC847B
7805	4822 130 60511	BC847B
7820	4822 130 60511	BC847B

Technician's Remarks

automotive
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VDO

Car Cassette Deck   SCA-R3.3   SCA-R3.1

Service Manual

12 V ⊝—┤₁₁

1.   GENERAL

The SCA-R3.3 is a full-logic Servo Controlled Autoreverse tape deck which is fully µP-controlled.
The deck is controlled by the headset via the standardized I²C bus.
Version -R3.3 is the standard version with an 8-pole MOLEX PICOFLEX interface connector.
The SCA-R3.1 has an 11-pole MOLEX SPOX interface cable.
Mechanically the -R3.1 version is the same as the -R3.3.

2.   TECHNICAL DATA

Operating voltages	:	10.0 - 16VDC (V1)
		(13.2VDC nom.)
		4.75 - 5.25VDC (V2)
		(5.0VDC nom.)
Tape speed	:	4.76 cm/s (-1..+3%)
Number of tracks	:	2 x 2
Wow and Flutter	:	≤ 0.3% DIN weighted
S/N ratio	:	≥ 46dB (measured at preamplifier)
Crosstalk suppression (track 2-3)	:	≥ 50dB
Channel separation (track 1-2/3-4)	:	≥ 40dB
Fast winding time	:	≤ 100 sec (C-60)
Bus interface	:	I²C
Weight (only mechanism)	:	400 g

3.　MAINTENANCE

The tape deck mechanism requires periodic cleaning.

3.1　Cleaning cassette
- Use drop-in cleaning cassette SBC114 (4822 389 20035)

3.2　Cleaning with alcohol or spirit
- Cleaning with alcohol or spirit is also possible.
- Especially the following parts need cleaning:
  - Playback head pos. 28.
  - Capstans pos. 9/11 and pressure roller assy pos. 42.
  - Pulley pos. 10 and motor pulley.
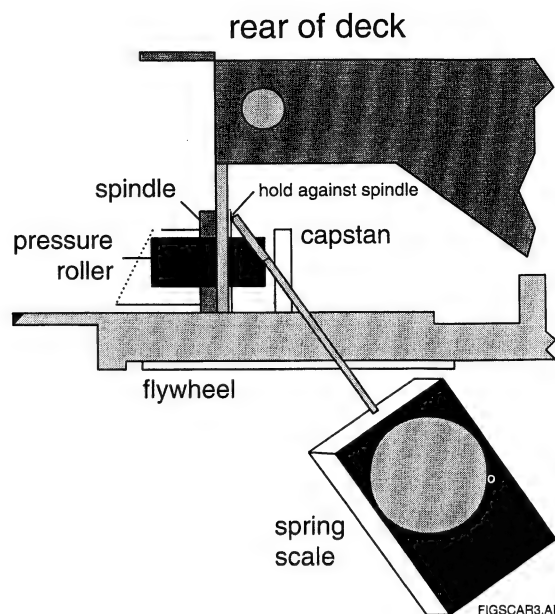
4.　ADJUSTMENTS AND CHECKS

4.1　Equipment
Equipment required:
- Universal test cassette SBC419
  - 4822 397 30069
- Universal test cassette SBC420
  - 4822 397 30071
- Friction test cassette 811/CTM
  - 4822 395 30054
- Spring scale 50-500g
  - 4822 395 80028
- Jig / puller for clutch
  4822 395 60039
- Wow & Flutter meter
- AC mV meters

4.2　Roller pressure
The pressure on the capstan should be 250 - 350 grammes (2.5 - 3.5 N).
This pressure is measured as follows (in NOR and REV play):
- Select NOR play mode.
- Push the back pressure roller spindle of pos. 42 back by means of the spring scale.
- The back pressure roller can be reached via the opening at the rear of the deck (see figure i).

Figure i

- At the point where the pressure roller and capstan (of flywheel pos. 11) just disengage the spring scale should be read.
- If the pressure is incorrect, replace roller assy.
- Select REV play mode.
- Push the front pressure roller spindle of pos. 42 back by means of the spring scale.
- At the point where the pressure roller and capstan (of flywheel pos. 9) just disengage the spring scale should be read.
- If the pressure is incorrect, replace roller assy.

4.3　Take-up wheels pos. 21
- Insert friction test cassette 811/CTM (NOR and REV).
- Play mode take-up torque should be 3.5 - 7.5 mNm.
- Fast wind torque should be 4 - 15 mNm.
- If the torque is incorrect, replace take-up wheel(s) pos. 21.

4.4　Wow & Flutter / tape speed
This check should be carried out on a COMPLETE car radio set; proceed as follows:
- Connect the wow & flutter meter to the LS outputs.
- Insert test cassette SBC419 or SBC420 and play the 3,150 Hz signal.
- The wow & flutter value should be ≤ 0.3% (DIN weighted).

- The tape speed should be 4.76 cm/s (-1..+3%).
- The tape speed can be adjusted with the screw of the capstan motor.
- This screw can be reached via the hole in the pcb pos. 86 (see figure ii).
- Use a screw driver of 1.8mm with an insulated shaft.

In case of an excessive wow & flutter value, first clean the deck as described, then check the following parts for correct functioning:
- Motors pos. 1 and 12
- Pressure rollers of pos. 42
- Belt pos. 3
- Flywheels pos. 9 and 11
- Diverting wheel (pulley) pos. 10
- All gears

resistors — capstan motor

part of pcb — adjustment screw access

FIGWOWFL.AI
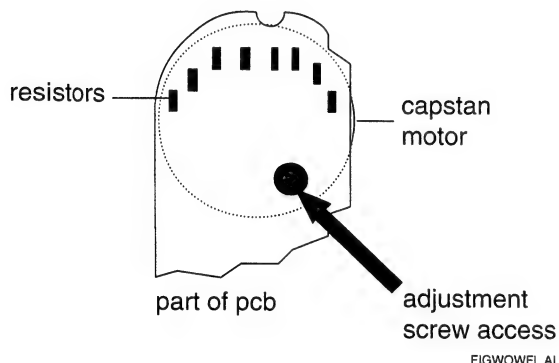
Figure ii

5. DISASSEMBLY PROCEDURE

5.1 Important

Before disassembling the tape deck, take care that the cassette holder pos. 51/52 is in the **eject** position.
Handle the cassette lift assy carefully to prevent bending it.
For re-assembling, follow the procedures in reverse order. Take care that the wires, cams etc. are in the right position again after re-assembling.
For the exact position of the parts, refer to the exploded view.

5.2 Loading position

Take care that the cassette lift and the transport disc pos. 33 are in the right position before to put it in the load position!
Be careful not to bend metal parts unnecessarily and not to damage the flywheels and belt!

5.3 Switches

To remove the
- PLAY switch pos. 100,
- STANDBY switch pos. 101,
- INSERT switch pos. 102 and/or
- ME/CR switch pos. 103,
carefully slide the switch(es) concerned out of the holder.

5.4 Capstan motor pos. 1

- Remove the belt pos. 3.
- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
  Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 2.
- Unsolder the capstan motor connections and take out the capstan motor.
- When re-assembling, take care that the cam on the chassis graps in the spare screw hole of the motor.

5.5 Servo motor pos. 12

- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
- Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 14.
- Unsolder the servo motor connections and take out the servo motor.
- When re-assembling, take care that the cam on the chassis graps in the hole of the motor.

5.6 Pressure rollers pos. 42

- Remove the holders with the pressure rollers by unclicking them from the centre pivot which is at the right side of the base plate pos. 23.

5.7 Head assy pos. 28

- Remove the pressure roller assy as described in section 5.6.
- Remove the spring pos. 30.
- Remove the head assy from the holder of the base plate pos. 23.

SCA_3_3.AI
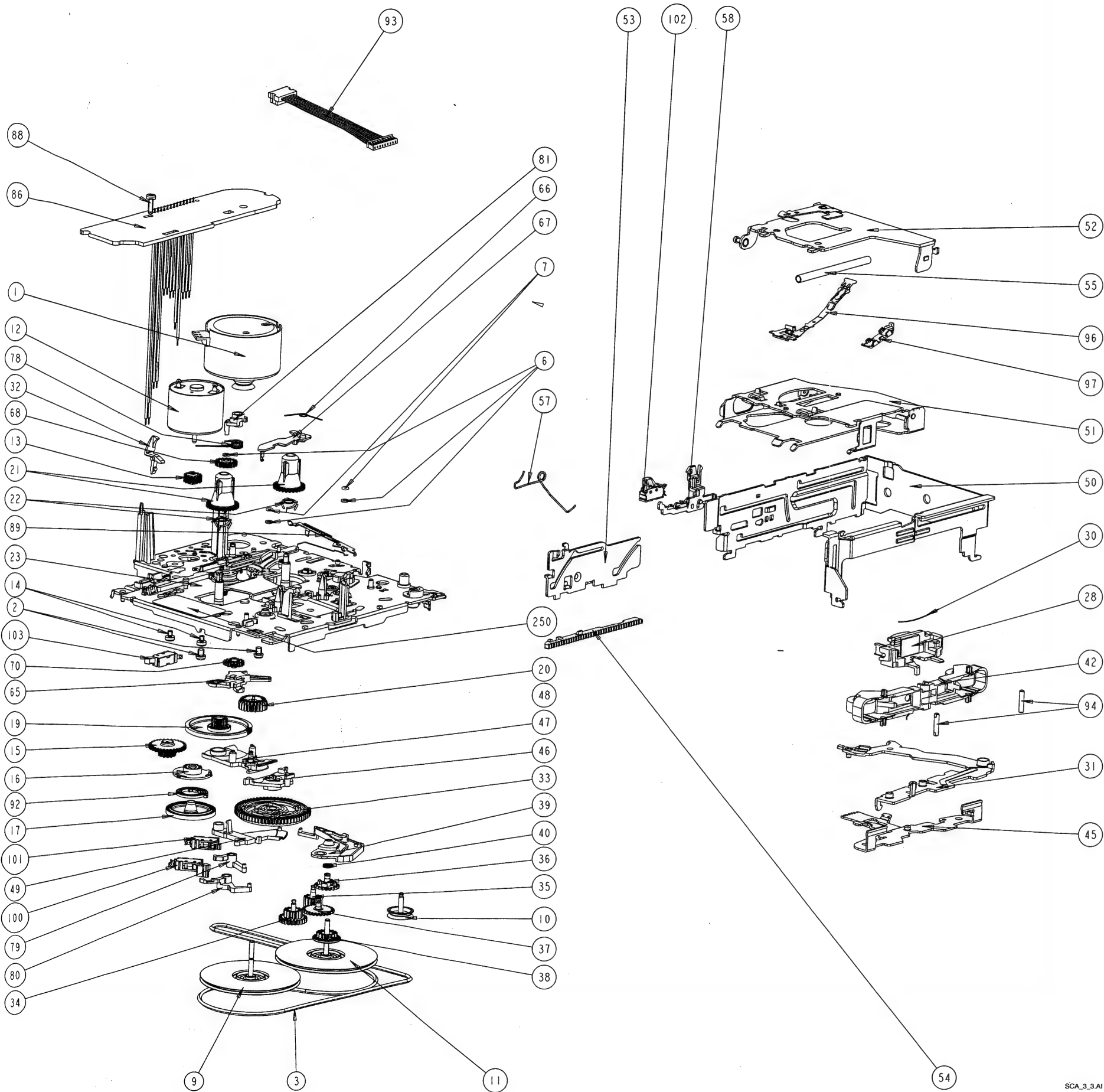
5.8 Flywheel / gear assy (NOR) pos. 11
- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 11.
- Remove fixation retaining ring pos. 6.
- *Note: when re-assembling, use a new retaining ring*, and take care that the gear does not become damaged. Put the flywheel spindle into the bearing carefully and turn it slightly.
- Take out the flywheel.

5.9 Flywheel (REV) pos. 9
- *First* move the cassette holder to the **load** position by turning gear assy pos. 16 to the right.
  Hold the lever on pos. 52 in such a way that the cassette holder is unblocked and can move backward.
- When the cassette holder reaches the load position, the capstan of flywheel pos. 9 can be reached.
- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 9.
- Remove fixation retaining ring pos. 6.
- *Note: when re-assembling, use a new retaining ring!*
- Take out the flywheel.

5.10 Take-up wheel (NOR) / back tension spring pos. 21
- The cassette holder assy pos. 51/52 must be in the **eject** position.
  If the holder assy isn't yet, turn gear assy pos. 16 to the left.
- When the cassette holder reaches the load position, take-up wheel (NOR) can be reached.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot.

5.11 Take-up wheel (REV) / back tension spring pos. 21
- The cassette holder assy pos. 51/52 must be in the **load** position.
  If the holder assy isn't yet, turn gear assy pos. 16 to the right.
- When the cassette holder reaches the load position, take-up wheel (REV) can be reached.

- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot.

5.12 Transport disc pos. 33
- Remove belt pos. 3.
- Remove switching lever pos. 49 (*note:* Use the right tools).
- Remove play switch lever pos. 80.
- Remove standby switch lever pos. 79.
- Move the arm of switch lever assy pos. 39 away from the transport disc.
- Remove intermediate wheel pos. 34.
- Take out transport disc with help of the special jig / puller to release the three snaps. Do not damage the post!
- *Note:* the head support should be in the 'standby' position. Grease the head support assy at the right points.

5.13 Switch lever assy pos. 39 / Switch wheel 1 pos. 37
- Remove flywheel (NOR) pos. 11 as described in section 6.
- Remove switch wheel 1 pos. 37 with help of the special jig/puller.
- Take out switch lever assy.

5.14 Gear rod pos. 54 / Lift wheel gear pos. 68
- Remove the cassette loading assy pos. 50 as described before.
- Take out gear rod.
- Remove fixation retaining ring pos. 6.
- *Note: when re-assembling, use a new ring!*
- Take out lift wheel gear.

5.15 Servo drive gear assy
- *Note:* Use the right tools.
- Remove damping gear assy pos. 16.
- Remove switching lever pos. 49.
- Remove swivel level assy pos. 47.
- Take out connection wheel pos. 19.
- Take out gear cluster pos. 15.
Important: when re-assembling, oil the gear bearings.

5.16 Diverting wheel pos. 10
- Remove belt pos. 3.
- Remove the diverting wheel with help of special jig / puller.
- *Note:* When re-assembling, grease the wheel in accordance with the lubrication overview.

5.17 Coupling lever assy pos. 65
- *Note:* the deck should be in the **eject** position!
- Remove damping gear assy pos. 16.
- Remove switch lever assy pos. 39 (see '**5.13**').
- Remove swivel lever assy pos. 47.
- Remove connection wheel assy pos. 19.
- Remove coupling spring pos. 66 and coupling slider pos. 67.
- Take out the coupling lever.

5.18 Re-assembly precautions
When re-assembling the deck, take care of proper mounting of the cassette loading assy. The cam of the lift plate pos. 53 (A in figure iii) should fall into the sleeve of the loading assy plate of pos. 50.
The other cam B should fall into the notch of the gear rod.
The loading assy plate should match the base plate completely. Bend the three lips back so that the loading assy plate is locked.
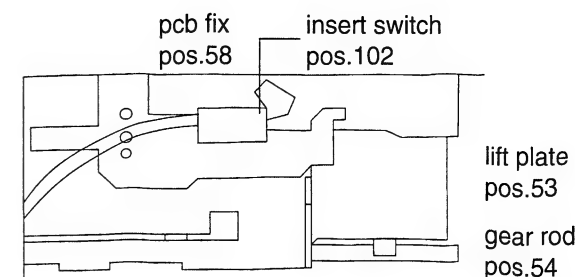
pcb fix pos.58   insert switch pos.102
lift plate pos.53
gear rod pos.54
cam A of lift plate   cam B of lift plate   REASS50.AI

Figure iii

The belt should be mounted as indicated in the figure below.
Take care that the belt is not twisted, not touched by grease and not damaged by sharp edges of the chassis!

capstan motor pulley pos.1
belt pos.3
flywheel pos.11
flywheel pos.9
pulley pos.10   BELTSCAR.AI

Figure iv

SCA_3_3.AI

51 cassette carrier
Kassettenschacht

50 frame
Rahmen

39 switch lever
Schalthebel

15 gear cluster
Zwischenrad

detail Einzelheit scale CC

detail Einzelheit scale X

view Ansicht A

view Ansicht B

65 coupling lever
Koppelhebel

70 coupling wheel
Koppelrad

47 swivel lever
Schwenkhebel

53 plate Lift
Liftplatte

52 lift assy
Zus-Lift

17 gear primary
Primaerrad

92 spring spiral
Spiralfeder

16 gear secondary
Sekundaerrad

detail Einzelheit scale B

detail Einzelheit scale C

33 transport disc
Transportscheibe

23 chassis assy
Zus-Chassis

detail Einzelheit scale K

detail Einzelheit scale F

detail Einzelheit scale G

detail Einzelheit scale L

22 spring back tension
Gegenzugfeder

detail Einzelheit scale A

detail Einzelheit scale M

detail Einzelheit scale D

detail Einzelheit scale E

detail Einzelheit scale I

detail Einzelheit scale H

8. CONNECTIONS

8.1 SCA-R3.3 (basic version)

8.2 Connections SCA-R3.1

SCAR38P.AI
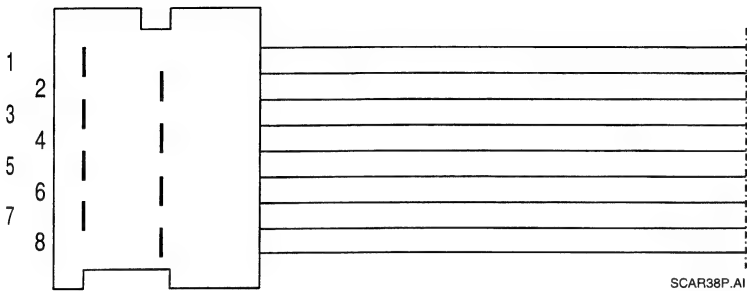
8 POLE CONNECTOR

Pin	Signal
1	INSERT SWITCH
2	INSERT SWITCH - COM / GND
3	+ 12VDC
4	SERIAL CLOCK - SCL
5	SERIAL DATA - SDA
6	BUS REQUEST - CRQ
7	+ 5VDC
8	RESET
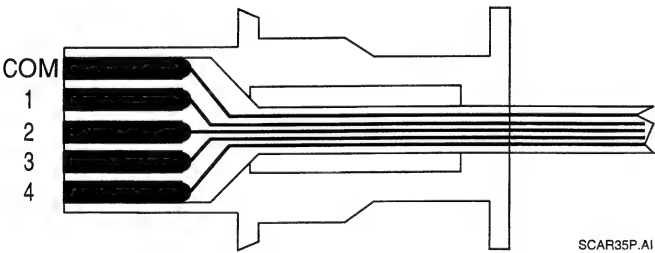
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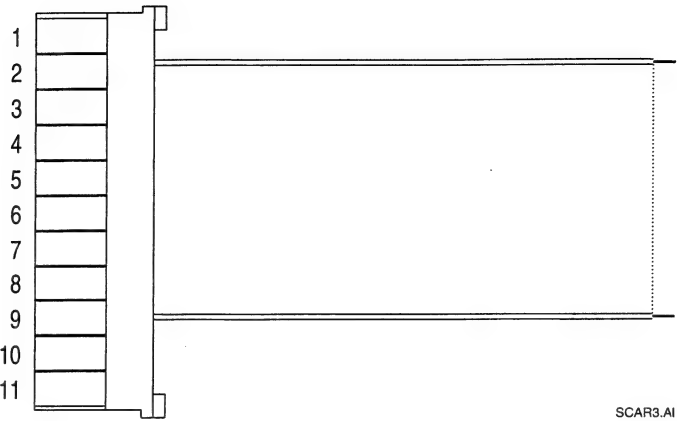
11 POLE CONNECTOR

Pin	Signal
1	N.C.
2	INSERT SWITCH
3	INSERT SWITCH - COM / GND
4	+ 12VDC
5	SERIAL CLOCK - SCL
6	SERIAL DATA - SDA
7	BUS REQUEST - CRQ
8	+ 5VDC
9	RESET
10	N.C.
11	N.C.
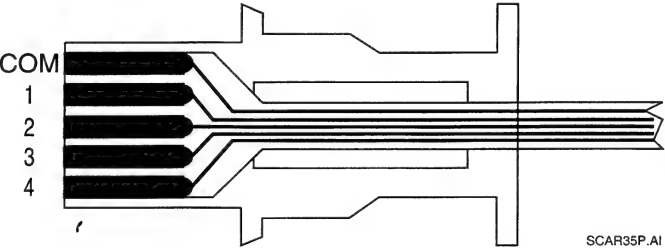
SCAR35P.AI

5 POLE HEAD CONNECTOR

Pin	Signal
COM	COMMON
1	LEFT NOR (FORW.)
2	RIGHT NOR (FORW.)
3	RIGHT REV
4	LEFT REV

SCAR35P.AI

5 POLE HEAD CONNECTOR

Pin	Signal
COM	COMMON
1	LEFT NOR (FORW.)
2	RIGHT NOR (FORW.)
3	RIGHT REV
4	LEFT REV

9. ELECTRICAL PART (CIRCUIT DIAGRAM 1 - HEAD CONNECTIONS - PCB LAYOUT)

130_1.AI

HEAD CONNECTIONS

COMP.AI

SMD.AI
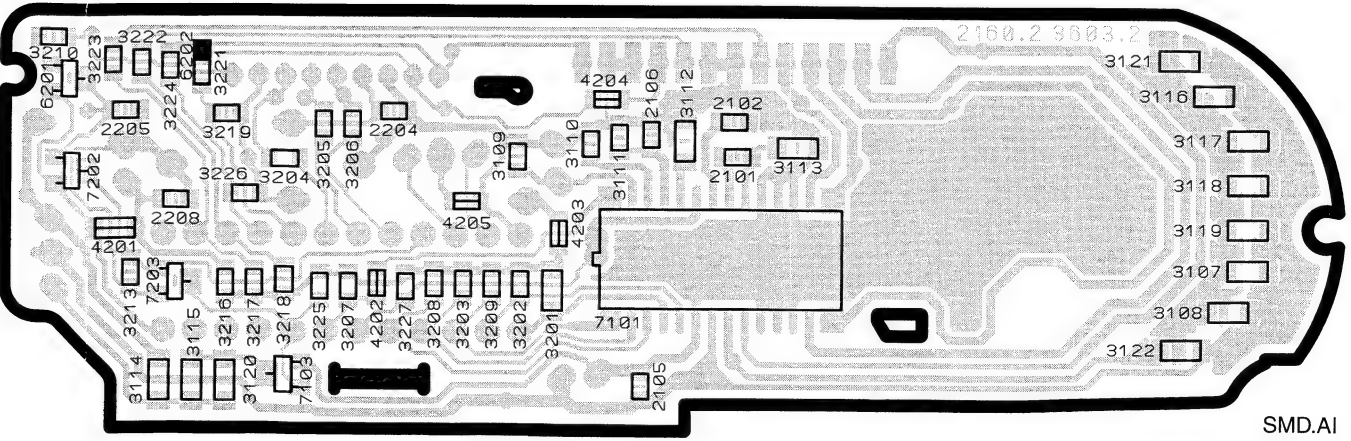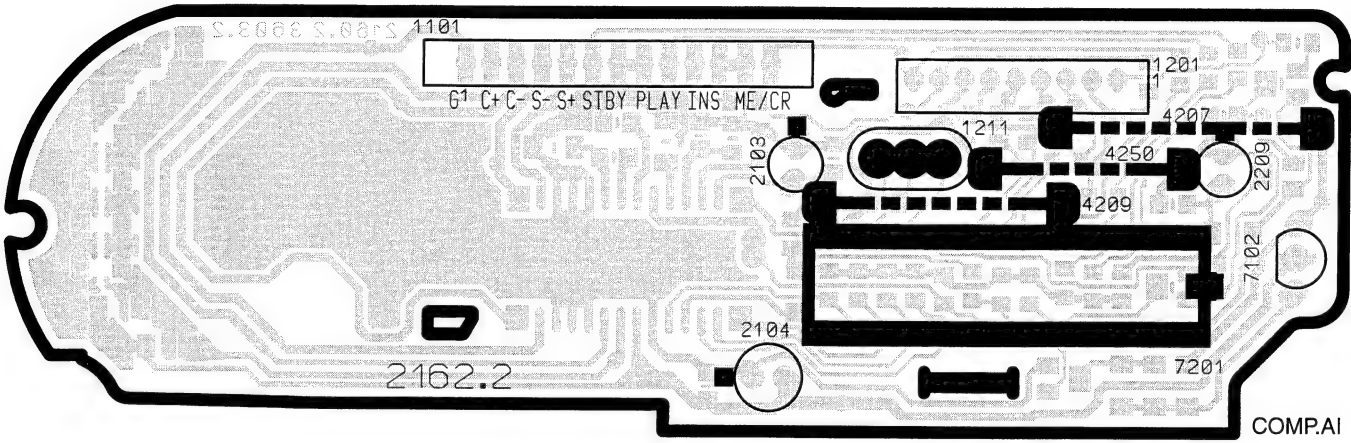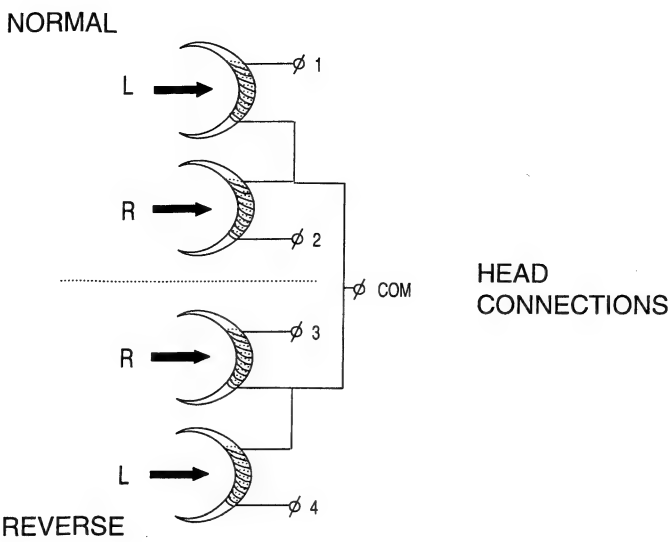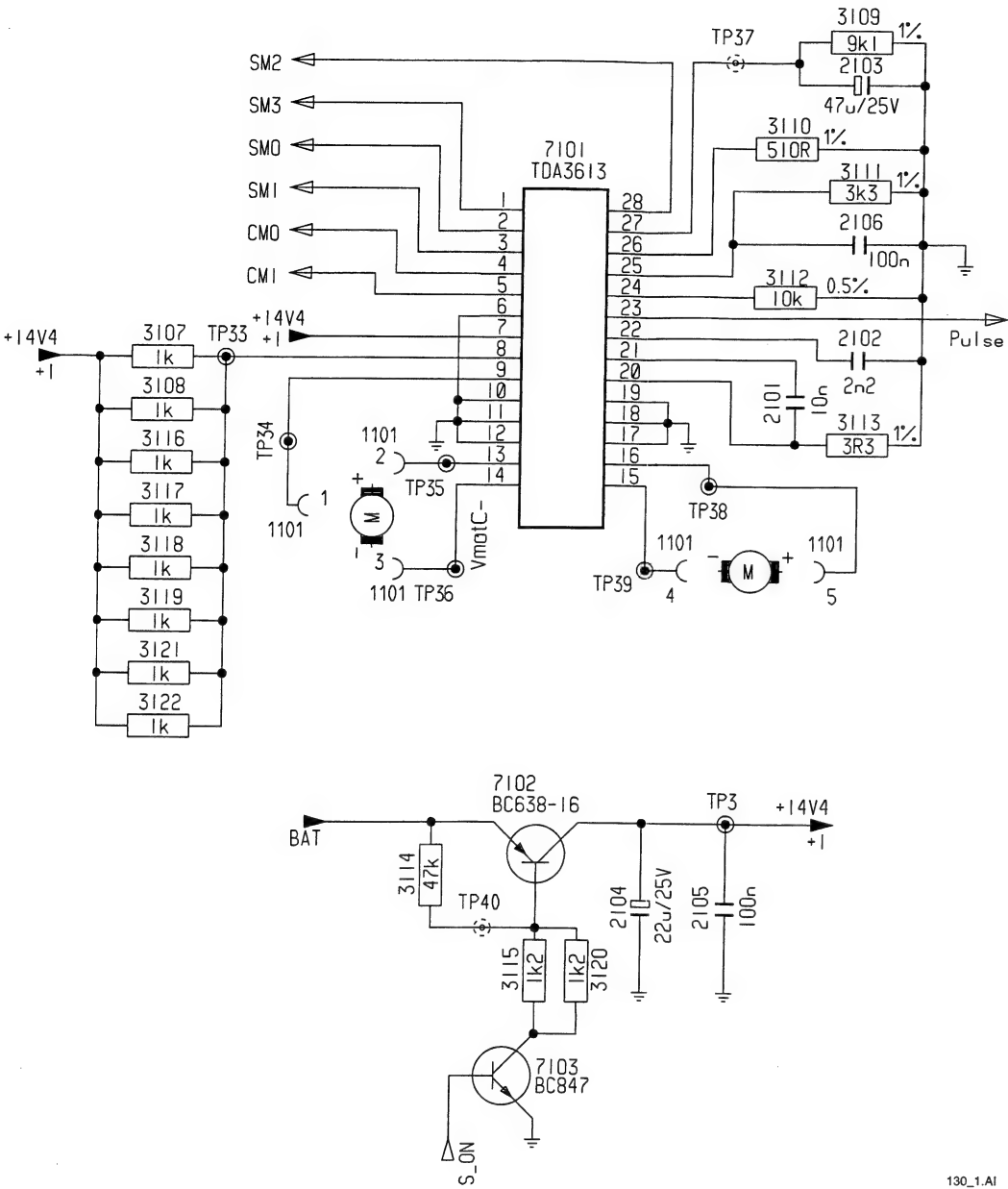
9. ELECTRICAL PART (CIRCUIT DIAGRAM 2)
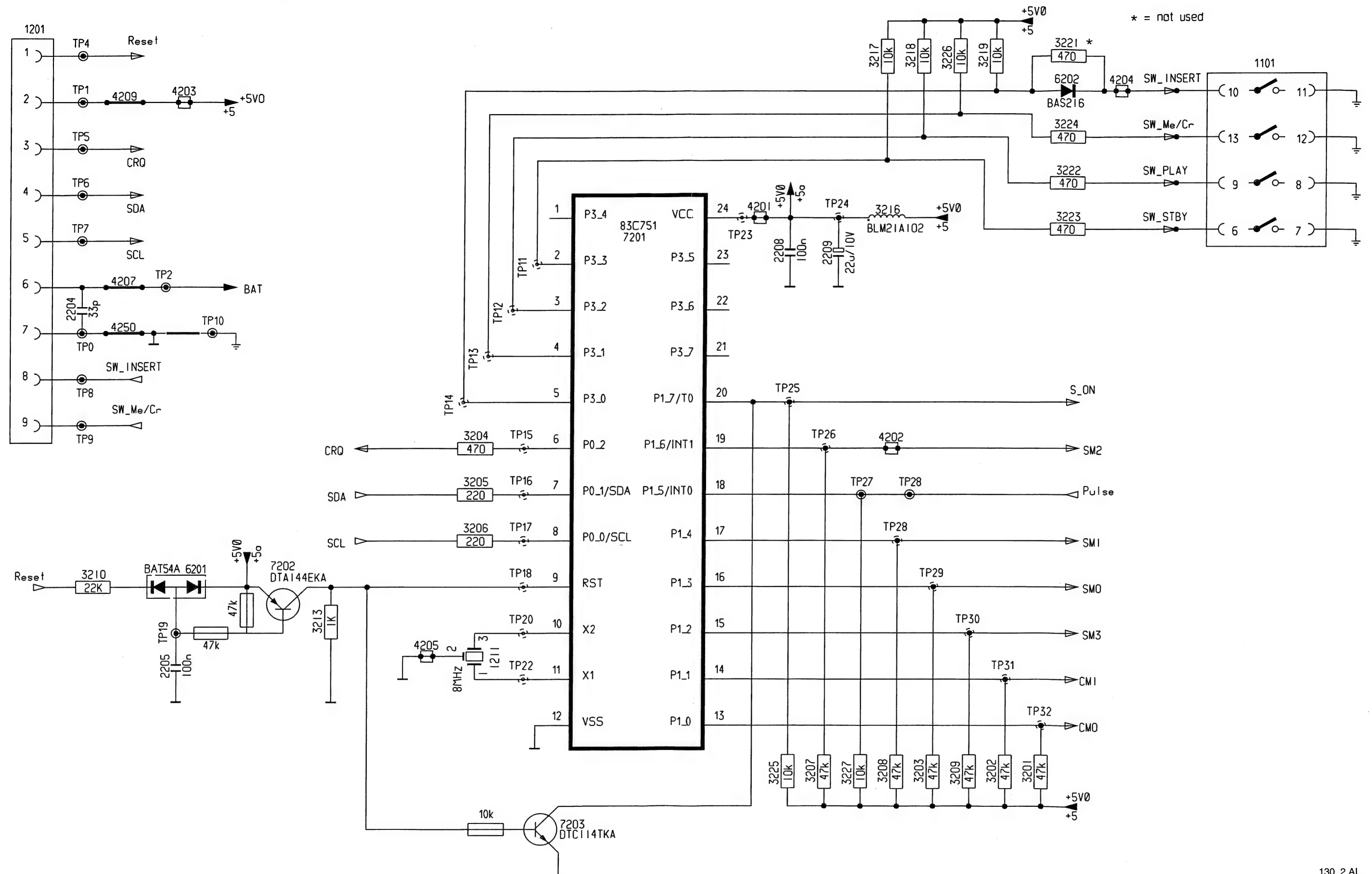
10. EXPLODED VIEW SCA-R3.1

(NOTE: for the SCA-R3.3 exploded view refer to section 6.)

SCAR3110.AI
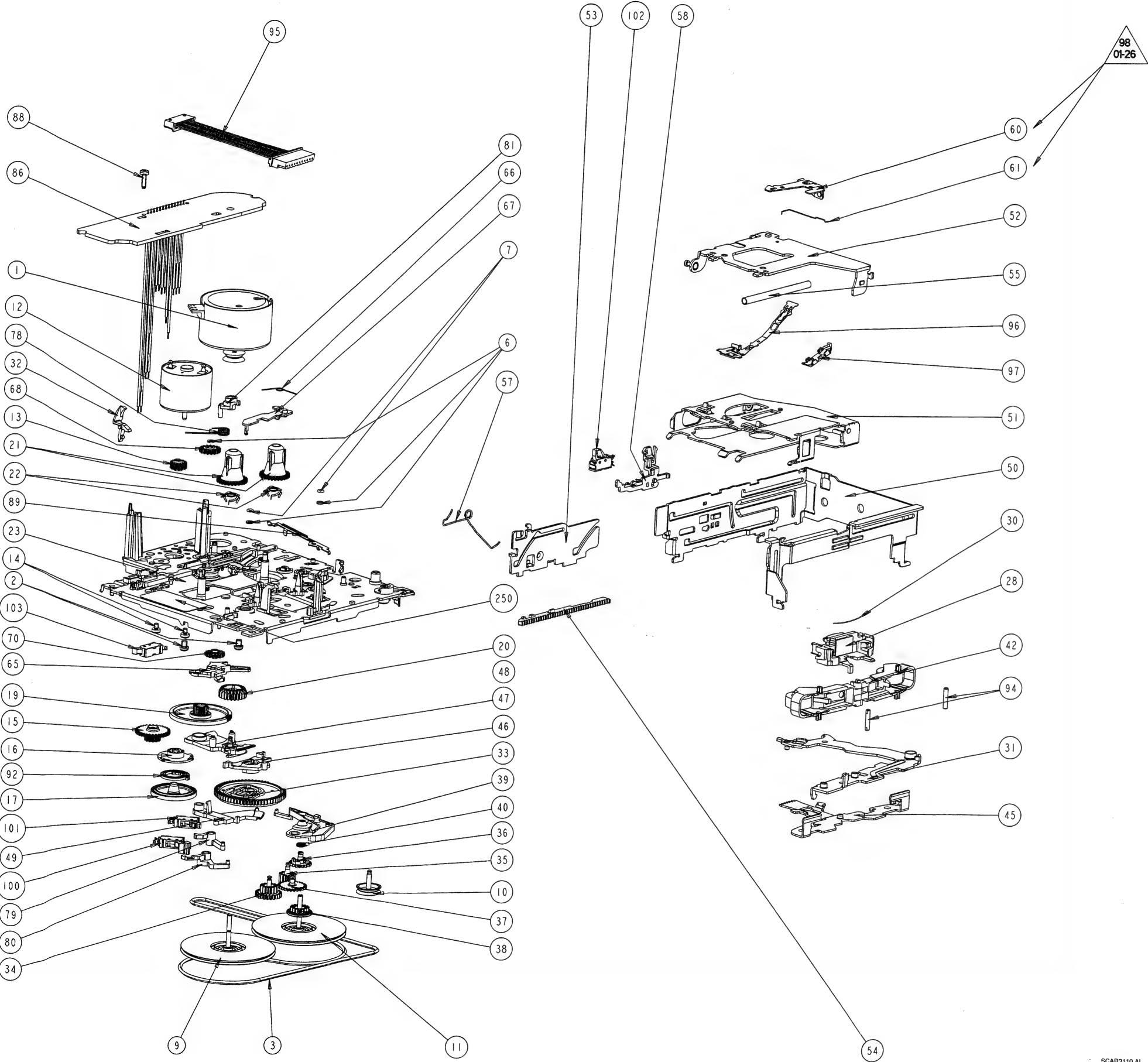
11. PARTS LIST

11.1 SCA-R mechanical parts

2	4822 502 12548	Special screw
3	4822 358 10221	Driving belt
6	4822 532 12841	Fixation retaining ring
7	4822 532 12842	Ring oil protection
9	4822 528 11176	Flywheel reverse
10	4822 528 81144	Divertingwheel pulley
11	4822 528 11183	Flywheel assy normal (with pulley)
14	4822 502 14467	Screw torx M2x2,5
15	4822 522 10637	Gear cluster
16	4822 522 10641	Damping gears assy
19	4822 528 11177	Wheel connection
21	4822 528 11178	Take up wheel
22	4822 492 11481	Spring back tension
30	4822 492 11482	Spring head
31	4822 404 10937	Head support
32	4822 402 10863	Rocking lever
33	4822 466 11665	Transport disc
34	4822 528 11179	Wheel intermediate
35	4822 528 11181	Drive wheel
37	4822 528 11182	Switch wheel 1
39	4822 402 10829	Switch lever assy
42	4822 402 10831	Pinchroller brkt assy
45	4822 402 10819	Lever simpson
46	4822 402 10821	Anchor lever
47	4822 432 11304	Swivel lever assy
49	4822 402 10822	Lever switching
50	4822 691 10627	Loading assy
54	4822 522 10638	Gear rod
58	4822 401 11716	Pcb fixation
65	4822 402 10832	Coupling lever assy
66	4822 492 11484	Spring coupling
67	4822 402 10824	Slider coupling
68	4822 522 10639	Lift wheel
78	4822 492 11485	Spring switch loading
79	4822 402 10826	Switch lever Standby
80	4822 402 10827	Switch lever Play
81	4822 402 10828	Switch lever Loading
88	4822 502 21488	ScrewM2x7 Ni tapt.
89	4822 460 11098	Blocking disc transp.

11.2 SCA-R electrical parts

1	4822 361 11009	Capstan motor assy
12	4822 361 11011	Servo motor assy
28	4822 249 10542	Magnetic head w/flexfoil
86	4822 214 12502	Pcb assy SCA R3.1
93	4822 320 12057	Cable assy SCA R3.3
95	4822 320 12144	Cable assy SCA R3.1
100	4822 276 13913	Switch Play
101	4822 276 13914	Switch Standby
102	4822 276 13915	Switch Insert
103	4822 276 13916	Switch CR/ME
105	4822 214 12503	PCB assy SCA R3.3

Philips Car Systems

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VDO**

Car Cassette Deck   SCA-R/3.3/3.1

Service Manual

12 V ⊖—|ı

1.   GENERAL

This supplement must be used together with the SCA-R3 service manual 4822 725 25481.
Because of changes and modifications in the meantime, the following parts have been revised and re-written:
- Technical data
- Maintenance
- Check & alignment procedure
- Dis- / Re-assembly procedure

Besides, a detailed 'Functional Description' has been added now. To clarify the descriptions, photographs and drawings are added where necessary.

2.   TECHNICAL DATA

Operating voltages	:	10.0 - 16VDC (V1)
		(13.2VDC nom.)
		4.75 - 5.25VDC (V2)
		(5VDC nom.)
Tape speed	:	4.76 cm/s ± 3%
Number of tracks	:	2 x 2
Wow and Flutter	:	≤ 0.5% (DIN w.)
S/N ratio	:	≥ 46dB (preampl.)
Crosstalk suppression (track 2-3)	:	≥ 50dB
Channel separation (track 1-2/3-4)	:	≥ 40dB
Fast winding time	:	≤ 100s (C-60)
Bus interface	:	I²C
Weight (only mechanism)	:	400 g

4822 725 25492

PCS 92 224

3.   DETAILED FUNCTIONAL DESCRIPTION

3.1   Function / Switch Status Overview

Position	Standby Switch	Play Switch	Insert Switch
Eject	Open	Closed	Closed
Standby	Open	Open	Open
Wind	Closed	Open	Open
Play	Closed	Closed	Open

3.2   Eject Position

The transport disc (pos. 33) must be in the position, shown in fig. **1**.
NEVER turn the transport disc, unless it is not in the 'Eject' position (yet)! If not in 'Eject' position, turn the NOR fly-wheel pos. 11 counter-clockwise until the transport disc reaches the 'Eject' position.
After this position has been reached, don't turn it anymore!

3.3   Insert Function

When a cassette is inserted, the 'Insert' switch is opened; the servo motor is turning clockwise so that the cassette lift moves backward until the 'Play' switch is opened.
At that moment, the servo motor stops and the deck is in 'Standby' position. Refer to fig. **2**, especially to the 'Standby' switch position.

3.4   Standby-to-Play Function

The capstan motor turns in clockwise direction until the deck reaches the "Wind" position (FF / REW - fig. **3/4**) and the standby switch closes. At the same time the coupling assy (pos. 65 and 70) and gear rod pos. 54 are uncoupled from the servo motor and swivel lever pos. 47 is released now.
The servo motor pos. 12 turns the swivel lever until it grasps into take-up wheel gear pos. 21. The rotation direction of the servo motor, together with the movement direction of the swivel lever, determines the play direction of the deck (NOR or REV).
The capstan motor turns clockwise until the transport disc reaches the "Play" position (Nor / Rev - fig. **5/6**). Now both the standby – and play switches are closed.
The servo motor starts to turn and tightens the tape.

Thereafter, the capstan motor starts to turn counter-clockwise for tape transport and uncouples the transport disc; simultaneously the servo motor now winds the tape (play function).

3.5   Tape End Detection

When the tape reaches the end when playing, this is detected by means of servo motor pulses. The microprocessor gives the command to the servo motor to change its rotation direction.

3.6   Play-to-Standby Function

The capstan motor now starts turning clockwise so that the transport disc assy is coupled again; the transport disc turns until both the standby- and play switches are open (refer to fig. **2**). During the transport disc rotation, the coupling assy (pos. 65 and 70) and gear rod pos. 54 are coupled again to the servo motor and the swivel lever is disabled from the take-up wheel.

3.7   Standby-to-Eject Function

The capstan motor turns until the transport disc is in the right position to couple the loading assy. The servo motor starts turning so that the loading assy moves forward until the insertion switch is closed. At that moment the deck reaches the "eject" position and the cassette is ejected.
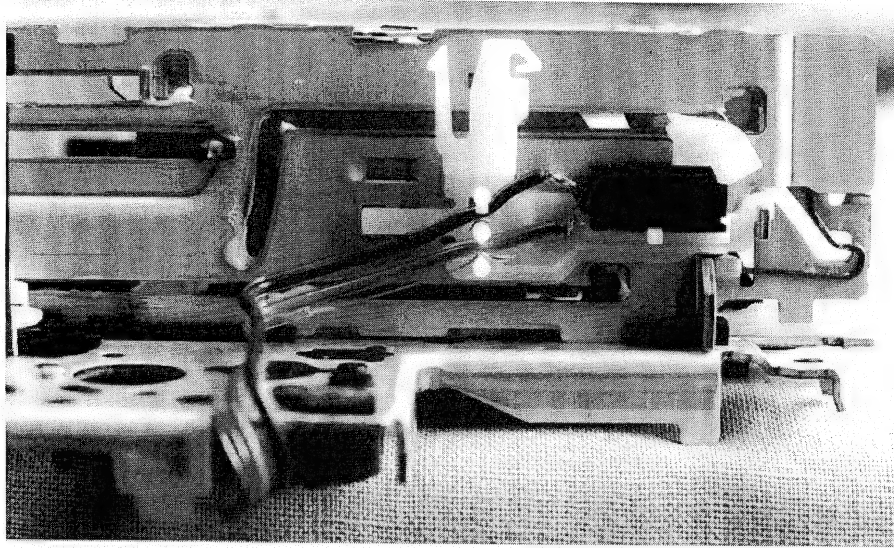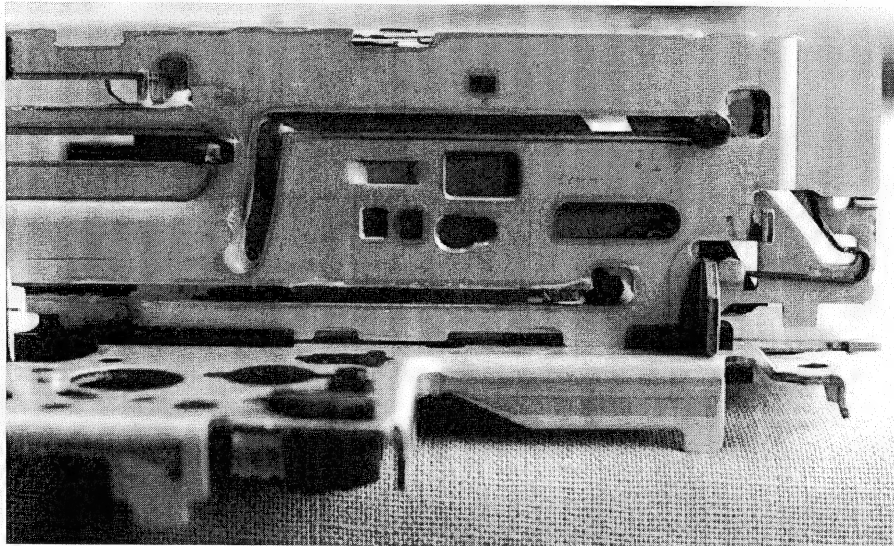
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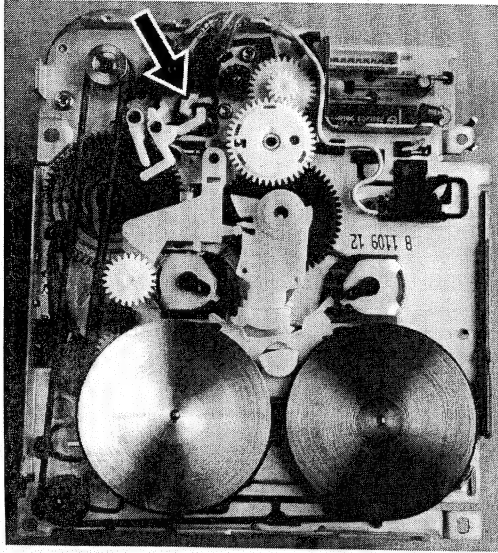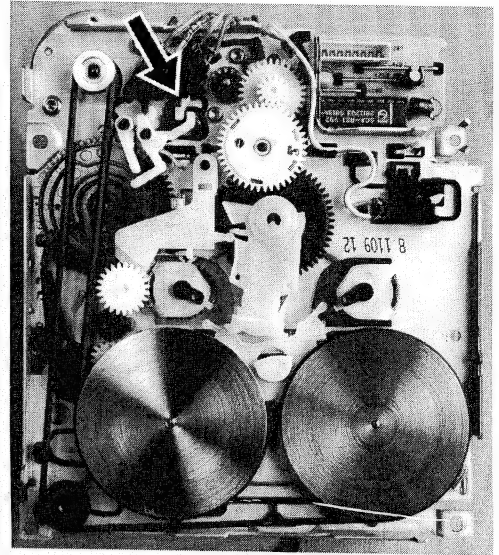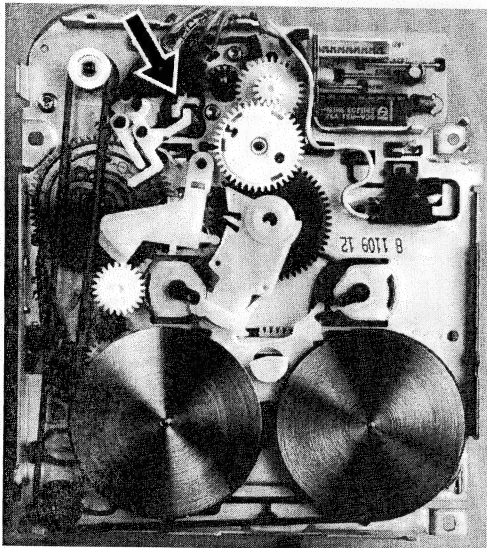
Figure 1

Figure 2
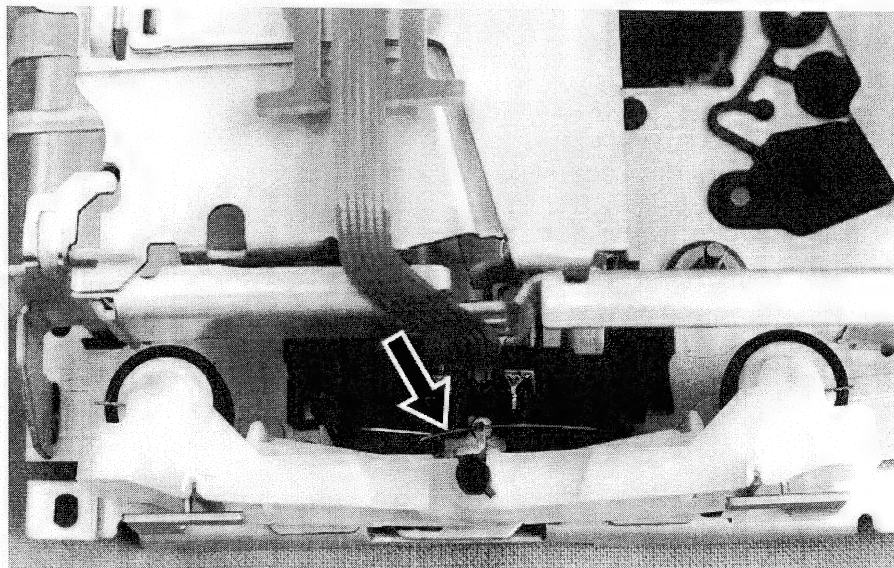

Figure 3
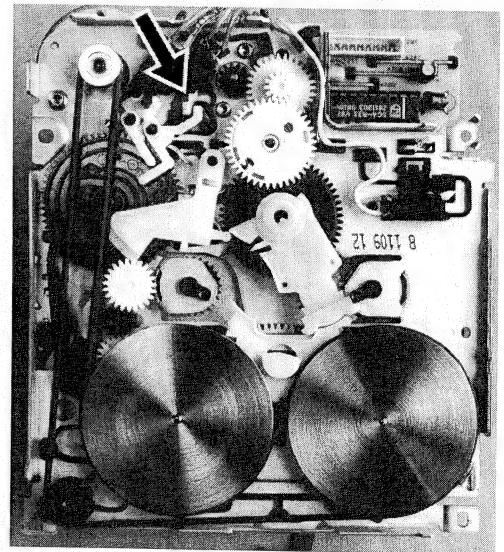
Figure 4
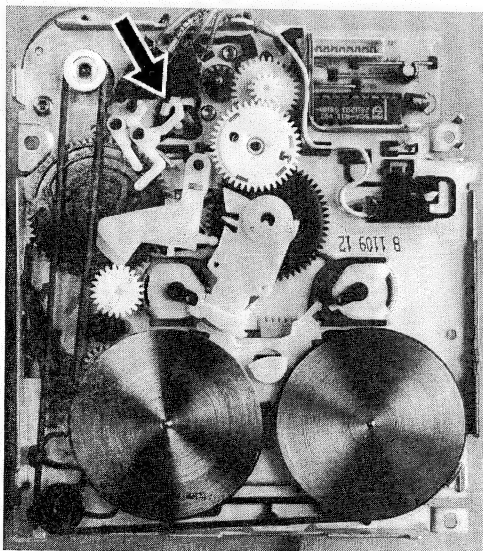
Figure 5

Figure 6

Figure 7

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Figure 8

CL 86600011_002.ai
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Figure 9

SMD.AI
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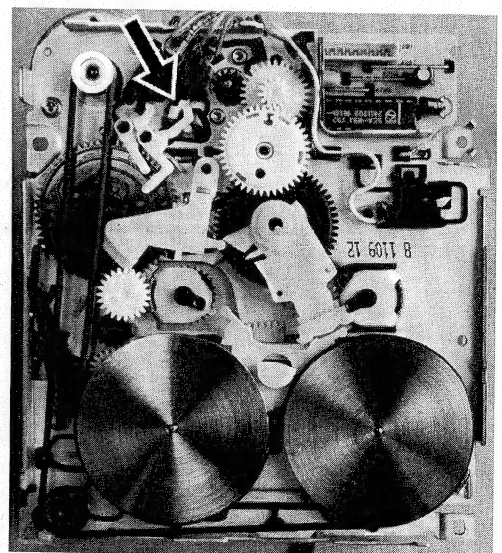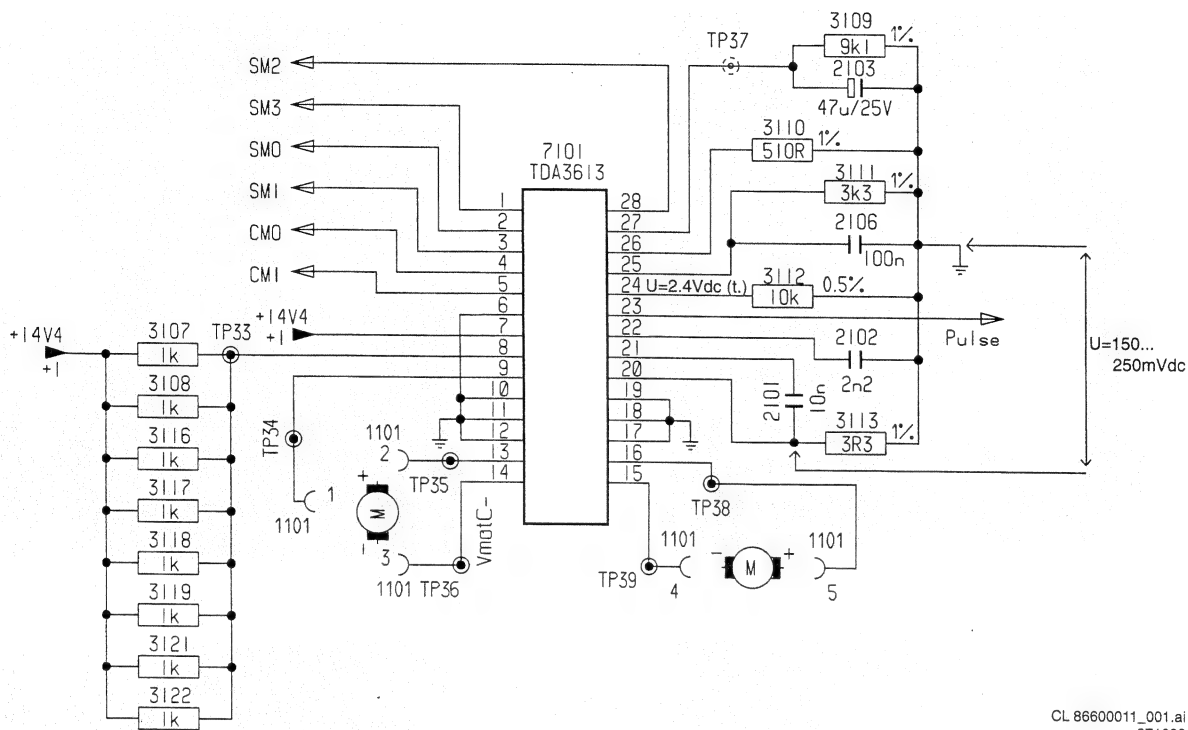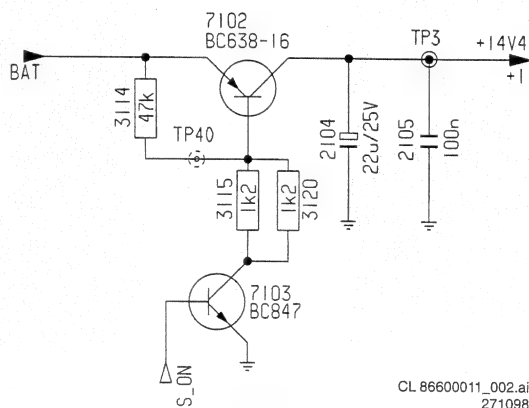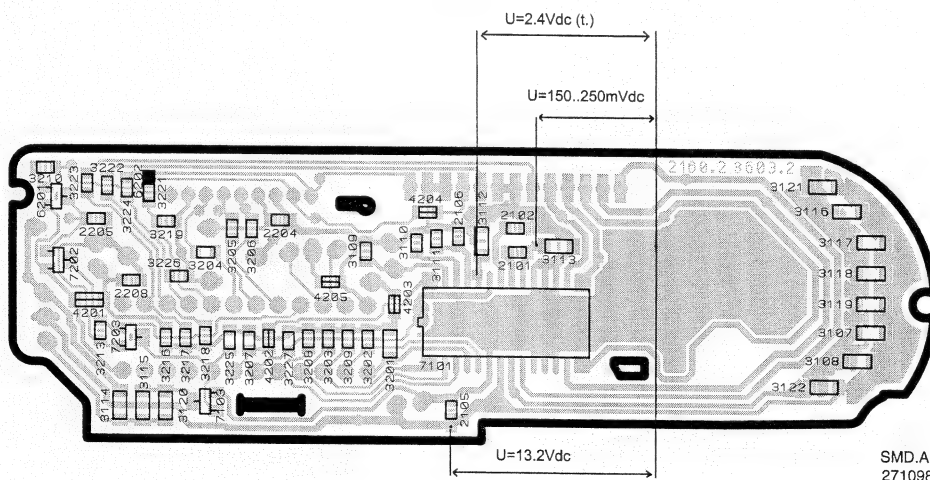
4. MAINTENANCE

The tape deck mechanism requires periodic cleaning.

4.1 Cleaning cassette
Use drop-in cleaning cassette
SBC114 (4822 389 20035)

4.2 Cleaning with alcohol or spirit
- Cleaning with alcohol or spirit is also possible.
- Especially the following parts need cleaning:
    - Playback head pos. 28 including tape guides.
    - Capstans pos. 9/11 and pressure roller assy pos. 42.

5. CHECKS AND ADJUSTMENTS

5.1 Equipment
Equipment required:
- Universal test cassette SBC419
    - 4822 397 30069
- Universal test cassette SBC420
    - 4822 397 30071
- Friction test cassette 811/CTM
    - 4822 395 30054
- Spring scale 50-500g
    - 4822 395 80028
- Jig / puller for clutch
    - 4822 395 60039
- Wow & Flutter meter
- AC mV meters
- Power supply unit with adjustable voltage
  $0 - 30VDC / \geq 2A$

5.2 Wow & Flutter
This check has to be carried out on a COMPLETE car radio set; proceed as follows:
- Connect the wow & flutter meter to the LS outputs.
- Insert test cassette SBC419 or SBC420 and play the 3,150 Hz signal.
- The wow & flutter value must be $\leq 0.5\%$ (DIN weighted – overall life cycle).

5.3 Tape speed drift / Speed adjust
- The tape speed must be 4.76 cm/s $\pm$ 3% (overall life cycle).
- The tape speed can be adjusted with the screw of the capstan motor.
- This screw can be reached via the hole in pcb pos. 86 (see figure **10**).
- Use a screw driver of 1.8mm with an insulated shaft.

resistors — capstan motor

part of pcb — adjustment screw access

FIGWOWFL.AI
271098
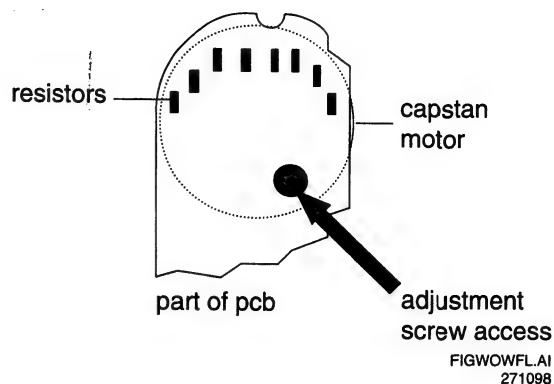
Figure 10

5.4 Play Torque
- Insert friction test cassette 811/CTM (NOR and REV).
- Play mode take-up torque must be 3.5 - 7.5 mNm.

5.5 Check Procedure of Electrical Operation
- ***Note:*** *refer to figures 7 – 9.*
- First check the voltage at TP3 (collector of pos. 7102). It must be equal to the normal car voltage (nom. 13.2VDC). If this value is not met, check pos. 7102 / 7103 and replace if necessary.
- Measure the voltage between GND and pin 20 of pos. 7101, as indicated in figure **9**. It must be 150 … 250mVDC and hence I_{R3113} must have a value between approx. 45 .. 76mA.
- Visually check resistors pos. 3109, 3110 and 3112. The value resp. must be 9k1, 510Ω and 10k.
  In case of doubts, check the value with help of an Ω-meter.
- Measure voltage at the indicated point (pos. 7101 pin 24); this must be 2.4VDC (typical value). If this value is not met, replace pos. 7101 or pcb.
- Check the servo motor by measuring its coil resistance; the value must be approx. 12Ω.
- Check the mechanical operation of the motor by applying a voltage of approx. 3VDC to it.
  Notes: + to red-marked terminal; disconnect motor from IC!

5.6 Mechanical Check

If there is no improvement of deck operation, first clean the deck as described, then check the following parts for correct functioning:
- Motors pos. 1 and 12
- Pressure rollers of pos. 42
- Belt pos. 3
- Flywheels pos. 9 and 11
- Diverting wheel (pulley) pos. 10
- All gears

In case of need to replace one or more parts, refer to the 'Dis-/Re-a ssembly Procedure' part.

6. DIS-/RE-ASSEMBLY PROCEDURE

6.1 Important

Before disassembling the tape deck, take care that the cassette holder pos. 51/52 is in the **eject** position. See figures **1** and **11**.

Handle the cassette lift assy carefully to prevent bending it.

For re-assembling, follow the procedures in reverse order. Take care that the wires, cams etc. are in the right position again after re-assembling.

For the exact position of the parts, refer to the exploded view (fig. **19**).

6.2 Standby position

Refer to figure **2**.

Take care that the cassette lift and the transport disc pos. 33 are in the right position (see '**6.1**') before to put it in the standby position!

The lift can be put in the standby position by turning gear assy pos. 16 / 17 / 92 to the right. Hold the lever on pos. 52 in such a way that the cassette holder is unblocked and can move backward completely; keep turning the gear assy until lift moves downwards.

Be careful not to bend metal parts unnecessarily and not to damage the gears, flywheels and belt!

6.3 Switches

To remove the
- PLAY switch pos.100,
- STANDBY switch pos.101,
- INSERT switch pos.102 and/or
- ME/CR switch pos.103,

carefully slide the switch(es) concerned out of the holder.

6.4 Capstan motor pos. 1

- Remove the belt pos. 3.
- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
  Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 2.
- Unsolder the capstan motor connections and take out the capstan motor.
- When re-assembling, take care that the cam on the chassis grasps in the spare screw hole of the motor.
  Note: Use a *new* belt when re-assembling!

6.5 Servo motor pos. 12

- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
  Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 14.
- Unsolder the servo motor connections and take out the servo motor.
- When re-assembling, take care that the cam on the chassis grasps in the hole of the motor.
- *Note:* Take care *not* to damage the gears!

6.6 Pressure rollers pos. 42

- Remove the holders with the pressure rollers by unclicking them from the centre pivot which is at the right side of the base plate pos. 23.

6.7 Head assy pos. 28

- Remove the pressure rollers as described in '**6.6**'.
- Remove the spring pos. 30.
- Remove the head assy from the holder of the base plate pos. 23.
- *Note:* When re-assembling, take care to put the spring pos. 30 in the right position again! See figure **13**.

6.8 Flywheel / gear assy (NOR) pos. 11

- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 11.
- Remove fixation retaining ring pos. 6.
- Take out the flywheel.
- Note: when re-assembling, use a *new* retaining ring *and belt*, and take care that the gear does not become damaged. Put the flywheel spindle into the bearing carefully and turn it slightly.
  Clean the capstan.

Figure 11

Figure 12

Figure 13

Figure 14

(cassette   lift)

move
snap
downwards

pos.49

pos.19
(part)

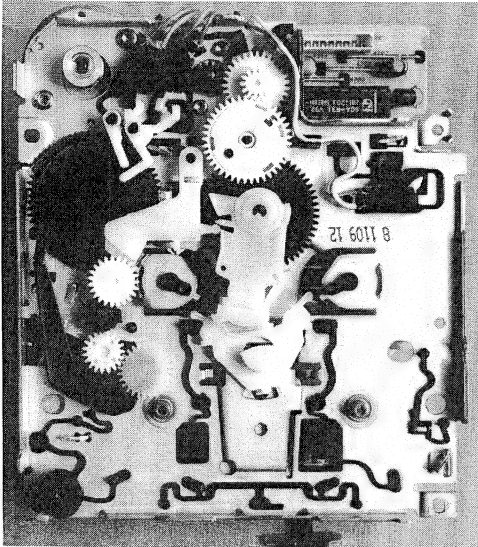top   view
(Deck in 'Eject' position)

pos.65
(part)

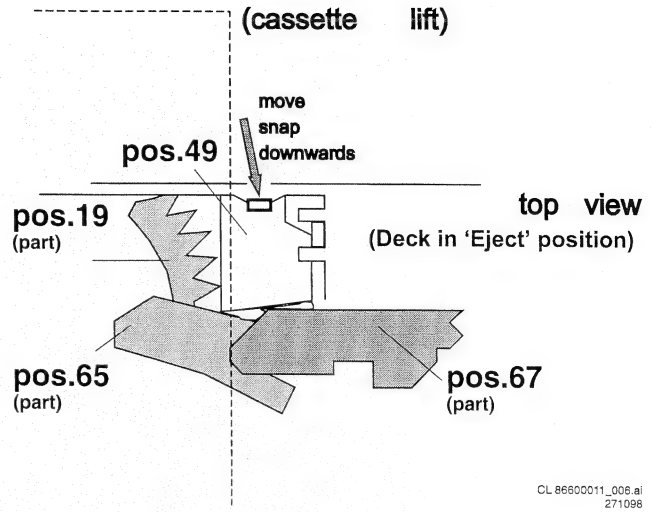pos.67
(part)

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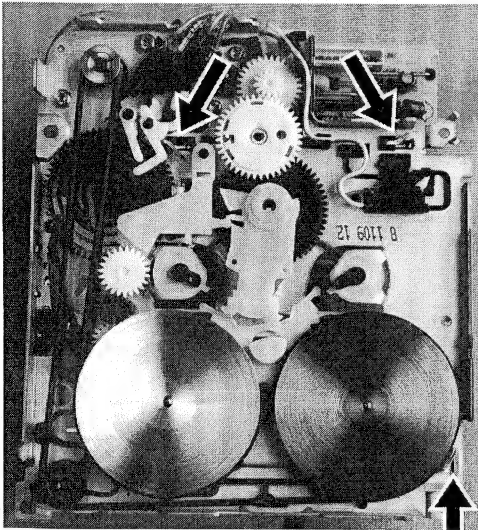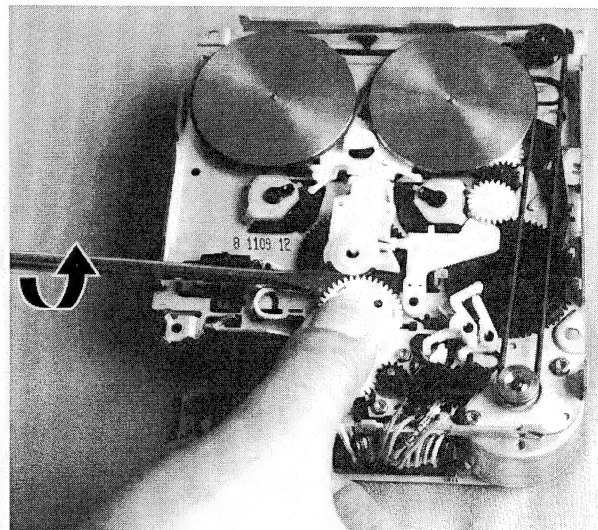271098

Figure 15

Figure 16
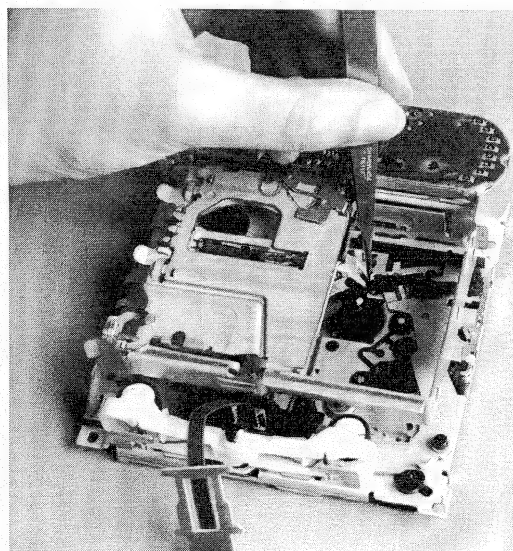

Figure 17

Figure 18

Suppl.

6.9 Flywheel (REV) pos. 9
- *First* move the cassette holder to the **standby** position. Refer to '**6.2**' and figure **2**.
- When the cassette holder reaches the standby position, the capstan of flywheel pos. 9 can be reached.
- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 9.
- Remove fixation retaining ring pos. 6.
- Take out the flywheel.
- *Note: when re-assembling, use a new retaining ring and belt!* Clean the capstan.

6.10 Take-up wheel (NOR) / back tension spring pos. 21
- The cassette holder assy pos. 51 / 52 must be in the **eject** position. If the holder assy isn't yet, turn flywheel NOR pos. 11 to the left.
- When the cassette holder reaches the eject position, take-up wheel (NOR) can be reached.
- Carefully shift levers pos. 65 / 67 in backward direction until the take-up wheel becomes free.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot. See figure **20**.

6.11 Take-up wheel (REV) / back tension spring pos. 21
- The cassette holder assy pos. 51 / 52 must be in the **standby** position. Refer to '**6.2**' and figure **2**.
- When the cassette holder reaches the standby position, take-up wheel (REV) can be reached.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot. See figure **20**.

6.12 Replacing Special Parts
Unless replacing after damaging, the following parts may be taken out NEVER:
- Transport disc pos. 33
- Switch wheel 1 pos. 37 / Switch lever assy pos. 39
- Gear rod pos. 54 / Lift wheel gear pos. 68
- Servo drive gear cluster pos. 15
- Diverting wheel pos. 10
- Coupling lever assy pos. 65

The following sections describe the dis- / re-assembling procedure of these parts, when they need to be replaced.

6.13 Transport disc pos. 33
- Remove belt pos. 3.
- Remove switching lever pos. 49 by releasing the snap as shown in figure **15**.
- Remove play switch lever pos. 80.
- Remove standby switch lever pos. 79.
- Carefully move the arm of switch lever assy pos. 39 away from the transport disc.
- Remove intermediate wheel pos. 34.
- Cut the three snappers of the transport disc pos. 33 and take out the disc. Do not damage the post!
- When re-assembling, insert a new transport disc. Take care that the head support contour is in the 'standby' position. Also take care that the switching lever pos. 49 is in the right position again!
  See fig. **1**.
  Grease the head support contour at the right points. See figure **21**.

6.14 Switch wheel 1 pos.37 / Switch lever assy pos. 39
- Remove flywheel (NOR) pos.11 as described in '**6.8**'.
- Cut pin of switch wheel 1 pos. 37.
- Take out switch lever assy pos. 39.
- When re-assembling, insert a new switch wheel.

6.15 Gear rod pos. 54 / Lift wheel gear pos. 68
- First remove the cassette loading assy pos. 50 by bending the three lips of the assy in straight position, lifting it at the front and sliding it out carefully. See figure **16**.
- Take out gear rod pos. 54.
- Remove fixation retaining ring pos. 6.
- Take out lift wheel gear pos. 68.
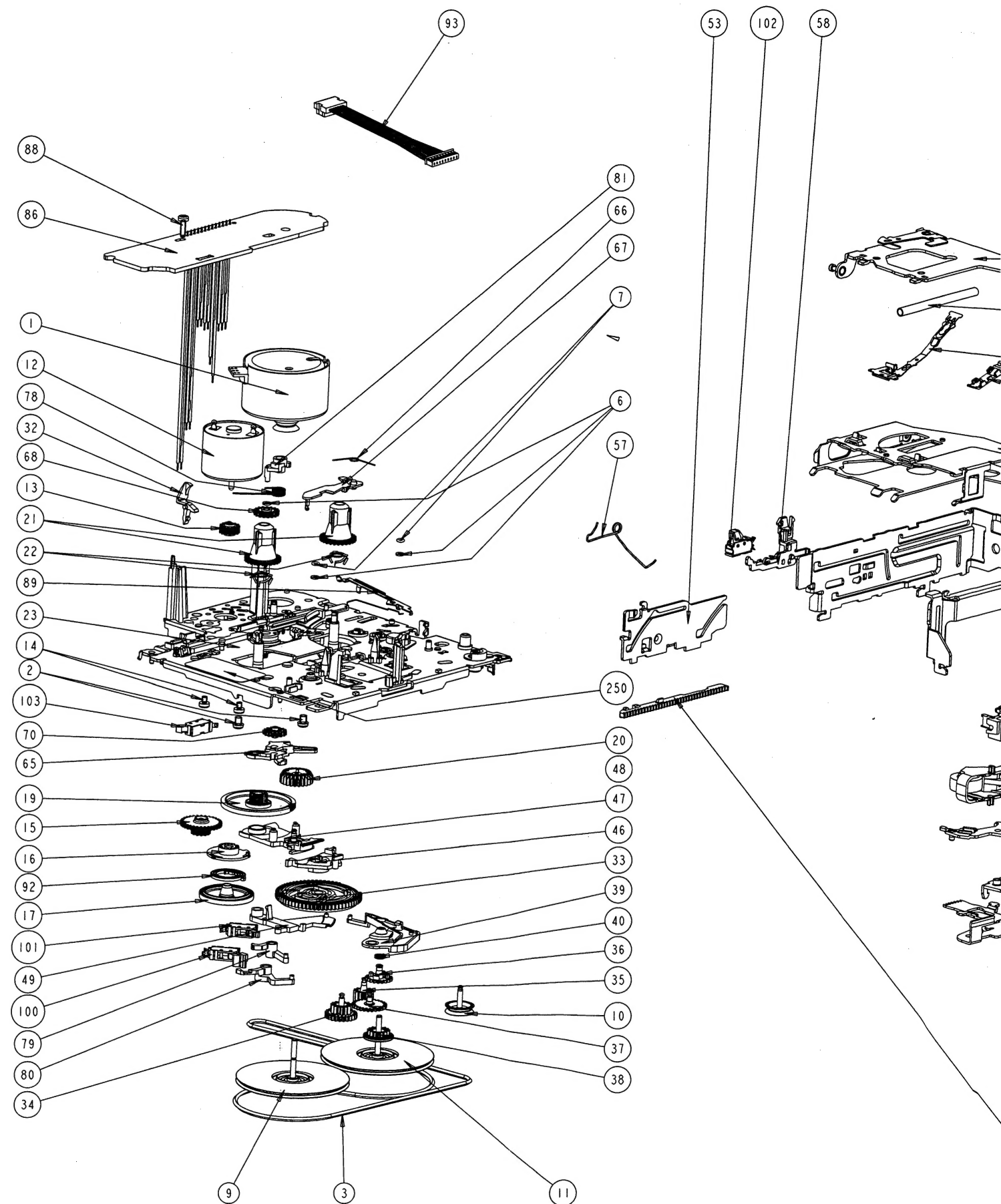- *Note: when re-assembling, use a new ring!*

Figure 19

itch lever assy

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. 15

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15.
os. 80.
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itch lever assy
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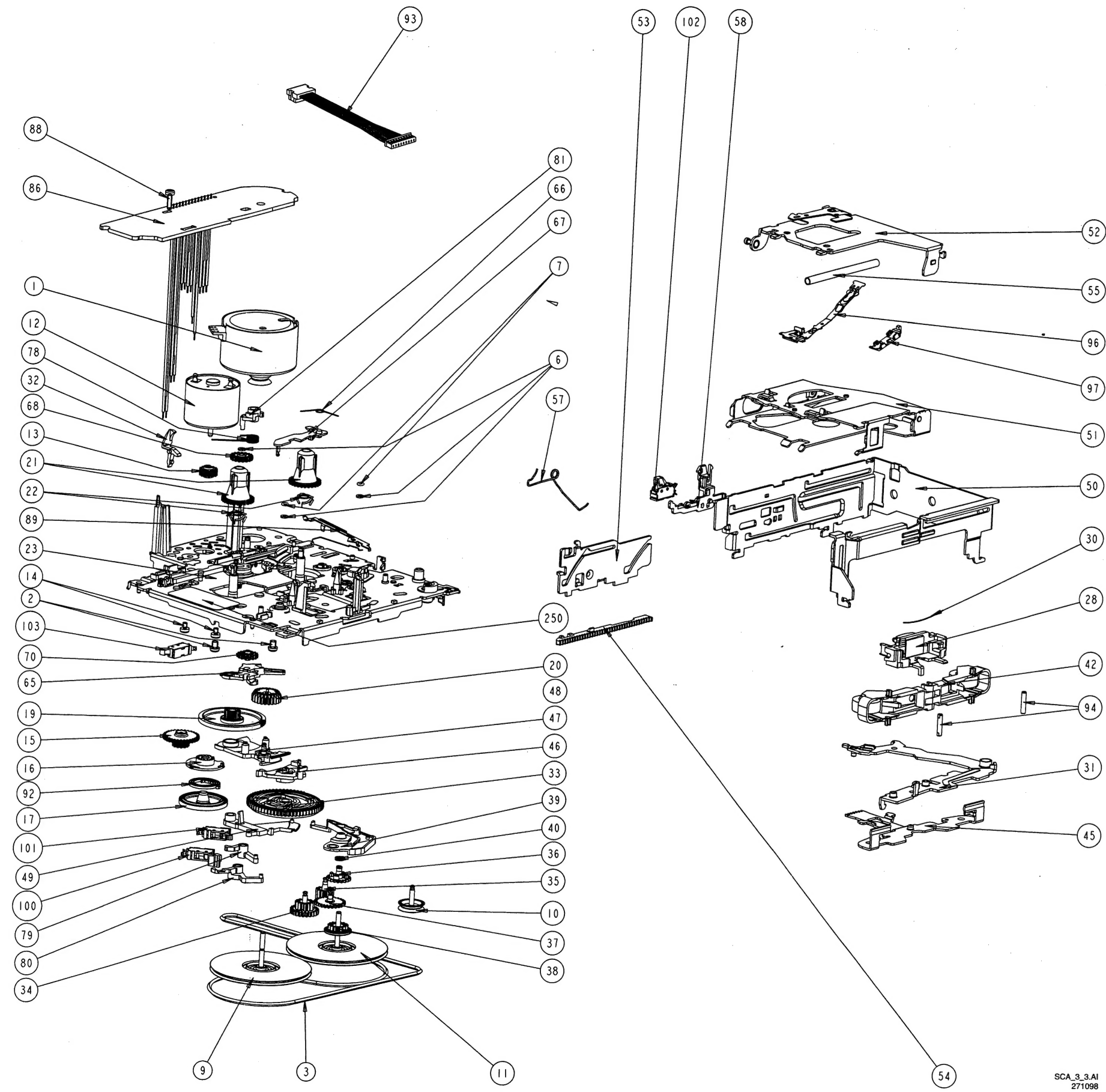jure **16**.
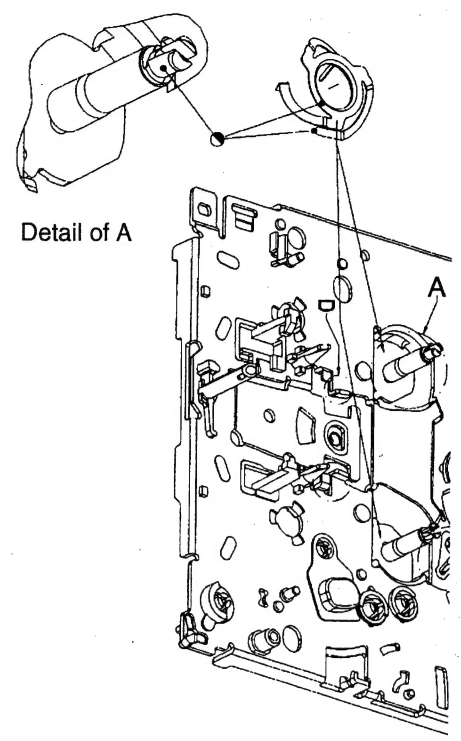
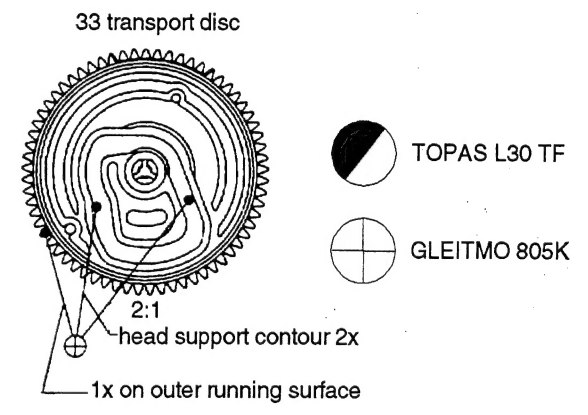j pos. 6.
68.
se a <u>new</u> ring!

Detail of A

Figure 20

33 transport disc

TOPAS L30 TF

GLEITMO 805K

2:1
head support contour 2x

1x on outer running surface

Figure 21

1

Detail of 1
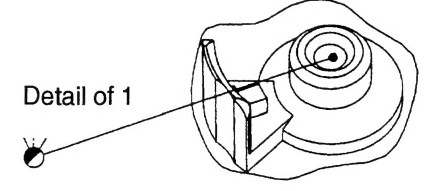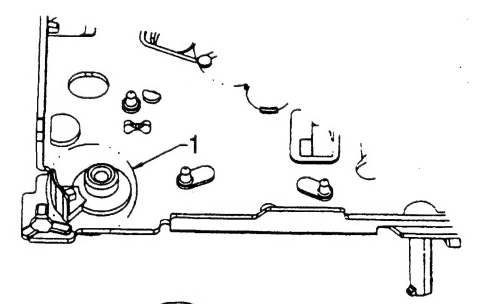
Figure 22

Figure 19

SCA_3_3.AI
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6.16 Servo drive gear cluster pos. 15

- *Note:* refer to figure **17**.
- Carefully lift the damping gear pos. 16 / 17 / 92 by a screwdriver as shown in the figure and remove it.
  Leave this assy complete!
- Remove switching lever pos. 49.
- Remove swivel lever assy pos. 47.
- Take out connection wheel pos. 19.
- Take out gear cluster pos. 15.
- *Important:* when re-assembling, oil the gear bearings.

6.17 Diverting wheel pos. 10

- Remove belt pos. 3.
- Remove the diverting wheel with help of special jig / puller.
- *Note:* When re-assembling, grease the wheel bearing in accordance with figure **22** and insert a *new* belt!

6.18 Coupling lever assy pos. 65

- Note: the deck must be in the **eject** position!
- Remove damping gear assy pos. 16 / 17 / 92 (see '**6.16**'). Leave this assy complete!
- Remove switch lever assy pos. 49 (see '**6.13**').
- Remove swivel lever assy pos. 47.
- Remove connection wheel assy pos. 19.
- Remove coupling spring pos. 66.
- Shift the coupling slider pos. 67 completely backward and remove it with help of a pair of tweezers.
  See figure **18**.
- Take out the coupling lever pos. 65.

6.19 Re-assembly precautions

When re-assembling the deck, take care of proper mounting of the cassette loading assy. The cam of the lift plate pos. 53 (A in figure below) must fall into the sleeve of the loading assy plate of pos. 50. See figures **11**, **12** and **23**.
The other cam B must fall into the notch of the gear rod.
The loading assy plate must match the base plate *completely*. Bend the three lips back into the right direction so that the loading assy plate is locked. See also figure **16**.
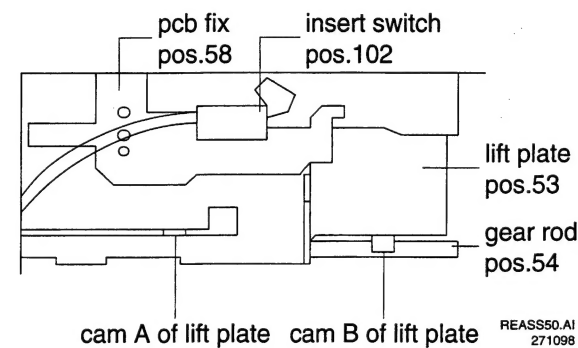

Figure 23

Always use a new belt when re-assembling it! The belt must be mounted as indicated in the figure below.
Take care that the belt is not twisted, not touched by grease and not damaged by sharp edges of the chassis!
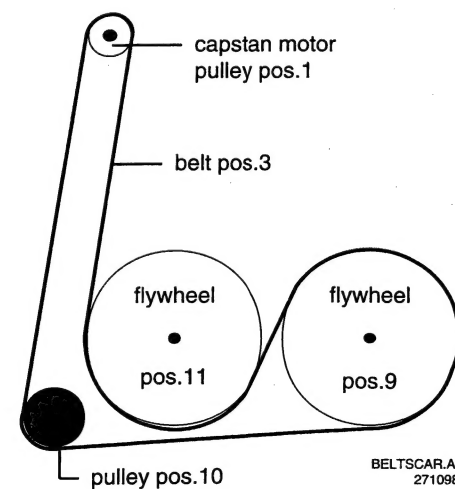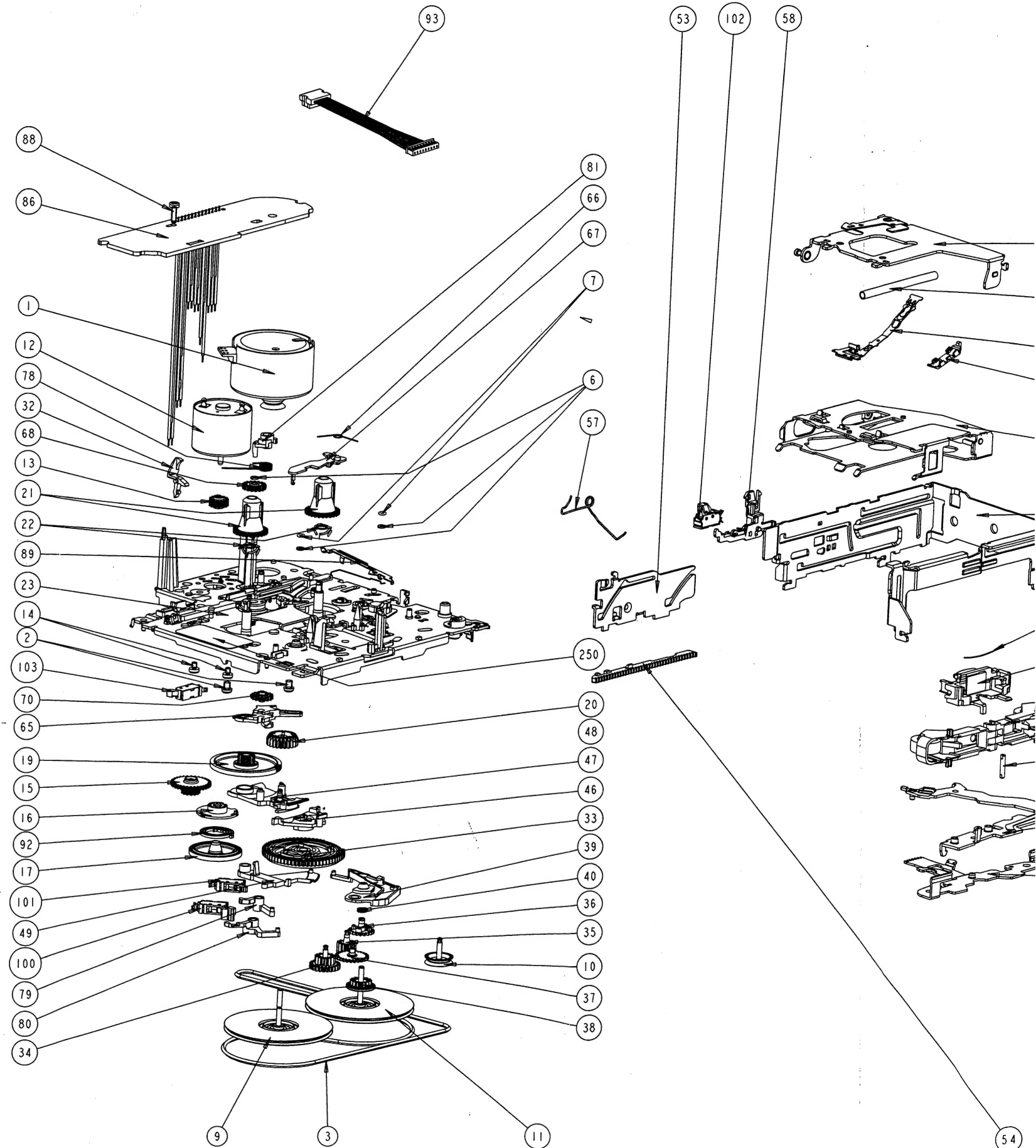

Figure 24

Figure 19

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figure
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12 and

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back into
assy plate

lift plate
pos.53

gear rod
pos.54

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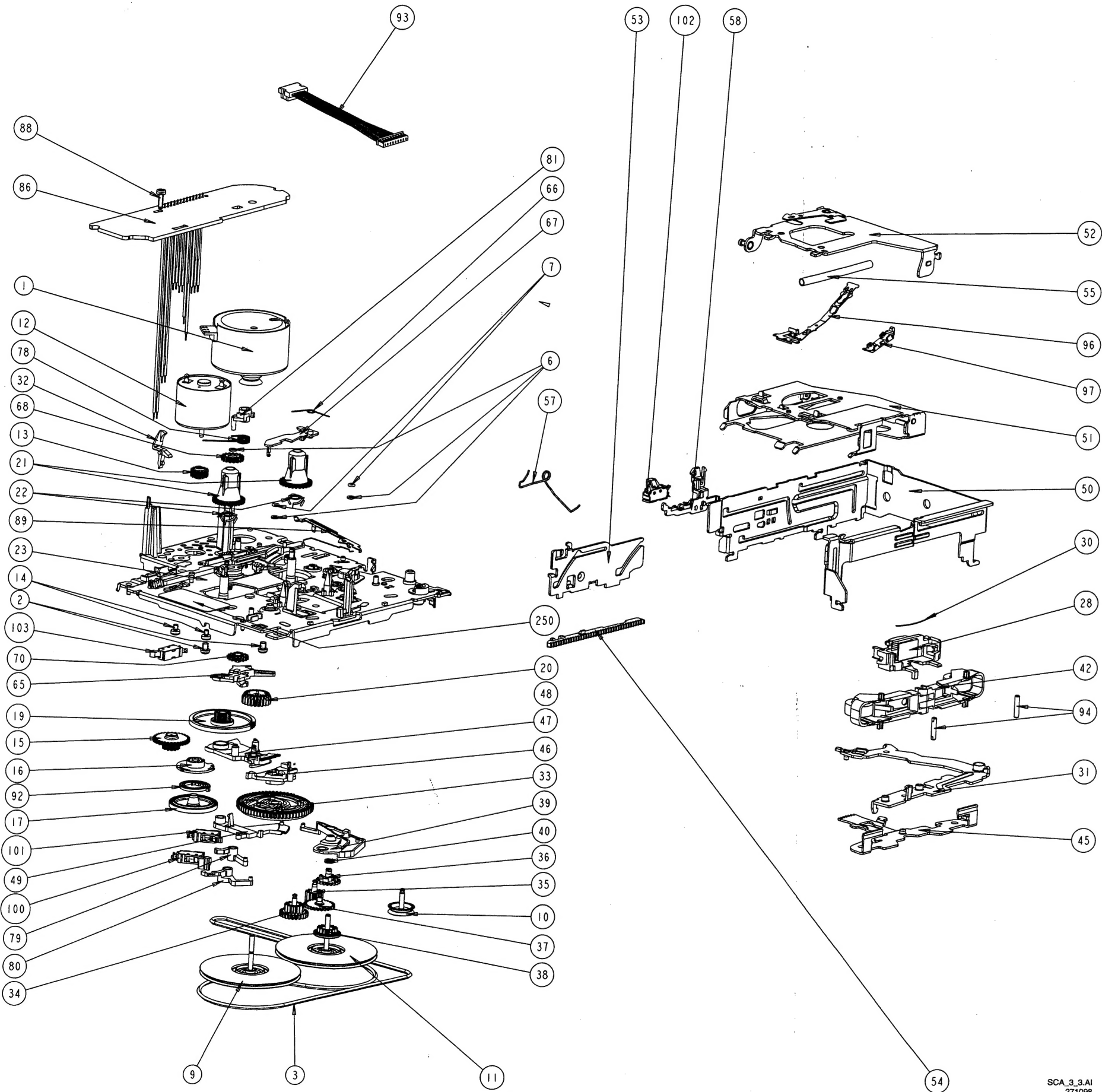271098

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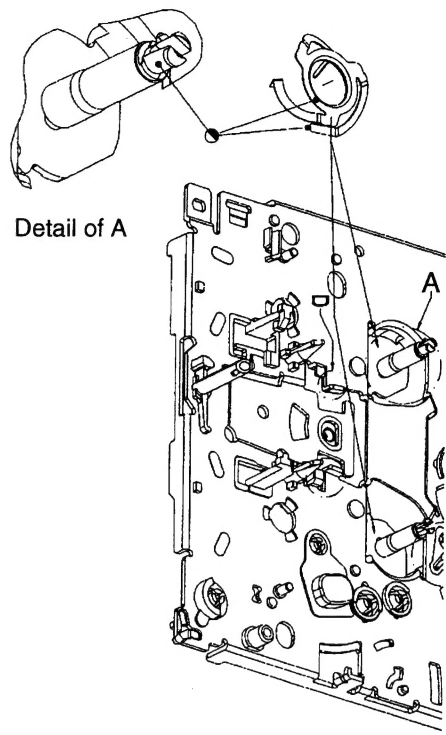86
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12
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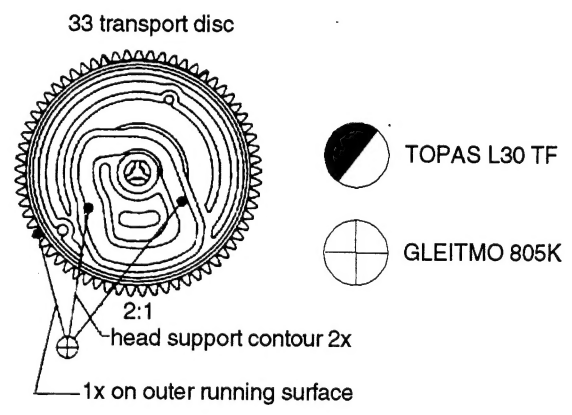32
68
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81
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67
7
6
57

53
102
58

52
55
96
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51
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37
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9
3
11

54

SCA_3_3.AI
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Figure 19

Detail of A

A

Figure 20

33 transport disc

TOPAS L30 TF

GLEITMO 805K

2:1
head support contour 2x

1x on outer running surface

Figure 21

1

Detail of 1

Figure 22

PHIL-05355 / DRUCK 12

- 6 -

PCS 92 229